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An Address
ON
RADIOLOGY IN CLINICAL MEDICINE AND SURGERY.

DELIVERED TO THE MEDICAL STUDENTS' DEBATING SOCIETY AT THE UNIVERSITY OF LIVERPOOL.

BY C. THURSTAN HOLLAND, M.R.C.S.,
CAPTAIN R.A.M.C.(T.F.),
HONORARY MEDICAL OFFICER TO THE ELECTRO-THERAPEUTIC DEPARTMENT OF THE LIVERPOOL ROYAL INFIRMARY; PRESIDENT OF THE RÖNTGEN SOCIETY OF LONDON.

WHEN, in December of 1895, it was announced to the world that a German professor of physics—Professor Roentgen of Würzburg—had, by means of some new rays, called *x* rays, been able to photograph (if I may use this expression) the bones of living people, and had been able to demonstrate the presence of metallic foreign bodies embedded in the human flesh, the first feeling was one of incredulity. In a short period of twenty years we have all become so familiar with these facts and with other discoveries, such as radium, the direct consequence of the discovery of invisible radiations, that we are apt to accept them as the ordinary incidents of everyday life.

Let me shortly recall to your memories the manner in which *x* rays originate. Take a glass globe, fit into it two terminals, attach to these terminals wires from the discharging poles of an induction coil, and then pass the induced, interrupted current from the coil through the globe; certain phenomena take place inside. Pump all, or nearly all, the air out of the globe until a very high state of vacuum is reached; then from the terminal attached to the negative pole of the coil a stream of rays—termed cathode rays—passes across inside the glass. These cathode rays strike the glass wall, and at every place on which they strike the result is the formation of *x* rays, and these, but not the cathode rays, can pass through the glass and affect things on the outside.

The original *x*-ray tube was pear-shaped, and its cathode terminal—inside the tube—a flat metal disc. From such a tube as this *x* rays came off in all directions from all parts of the glass wall. The first successful radiograph I ever saw taken was by Sir Oliver Lodge; it was the hand of a boy in which a small bullet was embedded, and the exposure was one and three-quarter hours. Even then, owing to the rays coming off at all angles and in all directions, it was a shadowy production, and the correct reading of the shadows required imagination. Almost immediately Professor Jackson of King's College revolutionized the *x*-ray tube, and, indeed, made present-day *x*-ray work possible. First, by shaping the cathode as a concave piece of metal, the result of which was that the cathode rays were focussed on a point near the middle of the tube; and secondly, at, or about, this point he made the positive terminal (the anode) end in a small disc of platinum placed at an angle. The result of this was that the stream of cathode rays struck the platinum at a point, and the *x* rays formed there were deflected in the shape of a cone, of which this point was the apex. So to speak, the *x* rays were focussed, and the tube became known as a "focus tube." The immediate effect was that exposures were cut down to a few minutes, or even seconds, and radiographs became sharp and diagnostic. This was a great advance, and though many advances in technique and in apparatus took place as years went on, this remained the essential feature of tube construction until Coolidge, about two years ago, introduced his celebrated tube, which bids fair to eliminate all other patterns. I shall not enter into any details as regards this last tube, but it is one which has the advantages of allowing enormous currents to be passed through it, and which can be so regulated that the stream of *x* rays passing from it has higher or lower penetration, according to the control exercised.

This leads me to the next point—namely, the penetration of *x* rays. These rays, once formed, continue in straight lines and pass through everything until they are absorbed. For practical purposes, an *x* ray is neither reflected nor refracted, and in these respects differs from an ordinary light ray. The penetration of different substances depends on two things—the ray itself and the substance through which it is attempting to pass. *X* rays may have so little penetrating power that they may be stopped by a sheet of paper; they may have so great a penetrating power that a considerable thickness of a dense metal may be passed through; and a peculiarity of an *x*-ray tube when in action is that it produces a stream of rays, which contains *x* rays of all kinds of penetrating power.

Place your hand upon a photographic plate, give a certain exposure from an *x*-ray tube set in action, and then develop the plate. All parts of the flesh, through which *x* rays pass easily, cast a shadow on the plate, but not a homogeneous shadow, the density of the shadow will depend upon the thickness of the flesh and the density of its different parts; and thus, on a good, that is a well-exposed radiograph, the flesh itself shows details of structure, and we can often see muscles outlined, tendons shown, blood vessels under certain conditions, and even organs such as heart, kidneys, and liver. Bones are more, very much more, opaque to *x* rays, and the result is that the bone shadows are easily seen; but, and this is important, they are also penetrated by some of the rays, and so the shadow again is not homogeneous, but the actual details of bone structure are well portrayed.

Metals, very opaque to *x* rays, stop most of them altogether, and so show as white areas on the developed plate; but even metals are penetrable according as we use hard (highly penetrating) rays and give long exposures. Place a coin upon a plate, and by careful exposure it is possible to penetrate it in such a way that, taking a penny for example, you can see on the plate the figures of Britannia and of the King's head, and the letters stamped on either side of the coin. That is, the different thicknesses of the metal show what may be termed a differentiated shadow.

Radiographs are, then, not photographs at all. They are images produced upon photographic plates by means of *x* rays.

In the early days of radiography it had extremely narrow limitations, and successful radiographs of the hand, the foot, and the thinner parts of the limbs, were looked upon as triumphs. Many attempts, with long exposures, anything up to even an hour, were made with a view to the examination of the thicker parts of the human body. The usual result of an hour or more of work of this kind was a plate, beautifully fogged, with practically no decipherable shadows upon it. Unfortunately at that time the reasons for failure were not known, but looking back it is easy to see that the apparatus at our disposal was not producing penetrating rays in sufficient quantity to produce the desired shadows. These attempts were doomed to failure from the start, and the risks our unfortunate patients ran are now, with present-day knowledge, appalling to contemplate. Many, indeed, did suffer from the production of acute *x*-ray burns, destruction and damage to the soft parts nearest the tubes, and these burns were disastrous as being exceedingly painful, and the ulcers caused difficult to heal as the cells in their neighbourhood were so much damaged. Numerous as such cases were, looking back on what we all did at that time, the wonder is that they were not much more numerous.

As apparatus improved, as it did rapidly, results became better and better; exposures were cut down from hours to minutes, minutes to seconds, and from seconds to fractions of a second, until now it is possible to take radiographs so rapidly that a bullet in the heart—moving the whole time—can be taken so fast that its shadow is quite sharp; and it is even possible to take a series of stomach radiographs so quickly that one can cinematograph the stomach movements.

This rapid improvement in technique opened up a vast field of work to radiography; and instead of being content with the portrayal of bones and foreign bodies, these are now looked upon as merely elementary parts of the work, and examinations of the organs of the thorax and most of those of the abdomen, to say nothing of the treatment of various diseases, are the everyday work of an *x*-ray department.

It is not too much to say that at the present time the *x*-ray department of a large hospital is the most important single department in the building, and one wonders what would happen if for any cause its work was suspended.

In order to understand this it is necessary to have some idea as to what is done in such a department, and, owing to the fact that *x*-ray work is not taught to students from an examination point of view, I am afraid that many of you, even when you are qualified, will not have taken the opportunity of realizing ot what vast importance radiography in skilled hands is both to the general practitioner and to his patients.

It is not possible for me to do more than take a few examples to illustrate my thesis; I cannot attempt to deal with all the possibilities of radiography in a short address.

Fractures.

A good many of you have worked in the casualty department of the Royal Infirmary. A large number of accidents in which there is a question of bone injury attend there every day. What would happen if you had not the *x*-ray department to fall back upon? Why, the diagnosis of fractures or otherwise would cease to be an exact science. The question of fracture or not is answered with certainty over and over again every day, and the remarkable manner in which even the most obscure injury to the small bones of the hand or foot is shown is such that none of you can appreciate the conditions which existed when I was a student, and when often the greatest uncertainty existed in individual cases, and the differences of opinion and the discussions which often arose. Radiography has had a marked influence not only on the exact diagnosis in these cases of injury, but it has influenced to an enormous extent the treatment, not only of individual cases, but of fractures generally. No case of suspected bone injury is so trivial that a medical man can afford to do without an *x* ray examination. You may often have cause to re_ret that such an examination was not made early in a case, you will never regret having insisted that one should be made. It will make a certainty doubly certain, it will often disclose an unsuspected condition of affairs which will influence diagnosis and treatment, and save you many days of anxiety and worry, to say nothing of possible law suits.

Thoracic Aneurysm.

In its early stage this is an *x*-ray diagnosis, and an *x*-ray diagnosis only. I do not know whether physicians nowadays teach the importance of the "tracheal tug" in the diagnosis of aneurysm; in my day we heard enough about it and its importance to fill up many a book; reams were written on the various signs and symptoms which went to suggest the presence of thoracic aneurysm, but the usual symptom—I quote from a well known textbook on medicine of that time—was "that a pulsating tumour was recognizable." When a thoracic aneurysm has got to that stage it is obvious that the unfortunate sufferer has not much longer to live, and the question of treatment can almost be put on one side. At the present time the examination of the chest by *x* rays has become so much of a routine that aneurysm can often be, and often is, detected before it has given rise to any symptoms which would suggest its presence to a physician; and although of course the treatment of this condition is never very satisfactory at any stage, it is obvious that the sooner it is diagnosed the better for the patient. The shadow of the normal thoracic aorta, especially in the neighbourhood of the arch, is so beautifully seen on the *x*-ray screen, that the smallest local bulging of an abnormal character is often easily detected. A rounded bulging shadow in the arch of the aorta the edge of which can be seen to pulsate is almost pathognomonic of aneurysm. *X*-ray difficulties of diagnosis sometimes exist between aneurysms and growths, and the exact diagnosis between the two cannot always be made by an *x*-ray examination alone, but it may be taken as a general rule that radiography can answer the question, "Is there an aneurysm or is there not?"

Other Conditions of the Thorax.

The light that radiography can, and often does, throw on many conditions affecting the thorax and its contents is such that it is never safe to neglect this means of diagnosis. The presence of fluid in the pleural cavity can be determined, but not the exact nature of the fluid. Pneumothorax, with or without the presence of fluid, makes a really beautiful *x*-ray picture, unmistakable and very striking. Mediastinal growths of all kinds are demonstrable. I do not wish to enter into detail as regards all the diseases and conditions affecting the thorax in which an *x*-ray examination is advisable, but it may be stated generally that in chest conditions of all kinds such an examination is almost imperative, as frequently negative *x*-ray evidence is as important as a positive result.

Two points are, I think, especially worthy of consideration. The first is, Of what use are *x* rays in the diagnosis of phthisis? This question must often arise, and the answer is simple. Every case of either definite or suspected phthisis should be subjected to an *x*-ray examination. In a definite case radiography will give a picture of the disease as regards the amount of lung involved, the presence of cavities or not, and their size if present, with which no other means of clinical examination can compete. Over and over again I have seen cases in which the disease has been supposed to be limited to one lung, but in which radiography has demonstrated beyond all doubt that the other is also affected. It occurs not infrequently that a case is sent to the department with a note "suspected phthisis." *X*-ray plates show lungs riddled with tubercle from apex to base. One value of radiography in a definite case is that by taking plates at intervals the course of the disease can be actually seen. As illustrating the limitations of percussion, auscultation, and so on in the examination of the chest, let me quote a case. A man was sent to the department by Dr. Hay—and none of us will question his ability to use physical signs and get the most out of them—with a request to examine the base of the left lung. Screen examination and a plate showed that there was an oval cavity in the lung several inches in length and half full of fluid, the space above the fluid being occupied by air. Dr. Hay examined the man again after this was demonstrated, and came even then to the conclusion that there were no signs (other than the radiographic) by which this condition was indicated. A fact of this kind, in which a large, a very large, lung lesion can be present without giving rise to definite physical signs, to my mind is of very great significance when we consider the question of the detection of very early and quite small pathological conditions.

This brings me to the question of the value of the negative *x* ray evidence in early phthisis. Can it be relied upon? It is beyond the scope of this address to enter into detail on a subject such as this; but I am convinced that an entirely negative *x*-ray examination carried out with the greatest care and efficiency is very strongly against tubercle, and in my private practice (where it is possible to carry out such examinations with greater precision than in a big general hospital department) I do not remember ever having known of a case in which all the *x*-ray signs were negative which went on to develop definite symptoms. There are, of course, great limitations as regards radiography in this respect, and I do not for a moment wish you to think that by means of *x* rays, and *x* rays alone, a diagnosis for or against phthisis is to be made. This is very far from being the case; but the value of skilled radiographic evidence in such cases is of enormous importance when considered with all the other obtainable evidence.

The second point to which I wish to draw attention is the value of a radiographic examination of the thorax in the presence of malignant disease elsewhere. There is no doubt whatever that secondary deposits of malignant disease in mediastinal glands and in the lung itself can be present without any symptoms, and without giving rise to any physical signs. There is equally no doubt that a certain number of patients undergo severe operations for primary growths in whom at the time of operation there are already such secondary deposits. We are in the habit of generally overhauling patients before operation with a view to finding out whether such secondary deposits are to be found, as of course, if such are present, operation on a primary growth with the object of cure is useless. The time has, I believe, arrived when it is necessary that the thorax of such patients should, as a matter of routine, be radiographed before operation. At the Cancer Hospital in London a large number of cases with malignant disease have been thus examined, and it is surprising how large a number show definite glandular or lung lesions secondary in character. Further, to quote Charles Mayo:

Especially important is the aid of the Roentgen ray in the diagnosis of early metastatic carcinoma of the lung and bones. In these cases the Roentgen findings prevent serious primary

or secondary operations when the original lesion is in the mammary gland or the thyroid. When such malignancy has existed for more than a year there may be 14 per cent. of metastases in lung and bone.

The Diagnosis of Urinary Calculus.

This may be described as one of the great achievements of radiography, and at the present time no operation for stone, except in the case of a sudden surgical emergency, is justifiable without a previous *x*-ray examination. The accuracy of radiographic work in this direction is, to say the least of it, extraordinary, and so-called mistakes so few that one does not hear the last of it for some time when one occurs. The last one I made indicates to you the general character of these mistakes. An elderly and decidedly obese individual wrote me an indignant letter because, a few days after I had radiographed him with a negative result and had charged him what he considered a somewhat large fee, he had passed the enclosed. The enclosed on examination proved to be a tiny speck of uric acid the size of a pin's head. I replied to him that I considered his complaint a very great compliment to my work, inasmuch as he suggested that I should have been able, with the kindly assistance of *x* rays, to show such a small object inside such a very large one.

Stones cast *x*-ray shadows in ratio to their density, and thus the oxalates are the easiest to show and the uric acid the most difficult. Fortunately, oxalate stones, or at any rate mixed calculi containing oxalates, are the most common, whilst the pure uric acid stone, except when it occurs in the urinary bladder, rarely reaches what may be termed "surgical size." Pure uric acid calculi when they do occur cannot be demonstrated by radiography, and as not altogether unfrequently they reach a large size in the bladder the negative diagnosis as regards the bladder is not reliable. In all my experience I have never seen a pure uric acid stone removed by operation from a kidney or a ureter, but I have occasionally seen one passed after a negative *x*-ray examination. It seems to be a fortunate thing that if a stone forms in a kidney or lodges in a ureter it practically never attains any considerable size without taking unto itself salts which are opaque to *x* rays. The real difficulty in the radiology of this subject is not to show shadows but to interpret them. Other things—calcareous abdominal glands, gall stones, phleboliths, calcareous patches in ligaments, appendix concretions, and many other rarer conditions—will sometimes cast shadows very difficult to distinguish from stone shadows; and the more experience one has the more careful one becomes in dogmatizing as to the cause of shadows. You will see, then, how important an element is interpretation, and that a successful radiographer is not merely a successful photographic plate taker.

The importance of reliable *x*-ray work in the diagnosis of stone or otherwise cannot be over-estimated; and the negative evidence is of equal value as the positive. During my tenure of office at the Royal Infirmary, now getting on for twelve years, no stone has ever been found by operation which the radiographic department has failed to show on an *x*-ray plate. You are so accustomed now to see one of the surgeons cut down on a kidney or ureter with the full confidence that he is going to find and remove a stone, and you have had so many opportunities of seeing such operations, that it may possibly surprise you to know that in the eight years before I took charge of the department the reports indicate only twenty-two operations for stone, and of these cases stone was found at the operation in only twelve. Facts of this kind speak for themselves, but to my mind the present day surgery of stone has been made possible by radiography alone.

The Investigation of the Stomach and Bowel by the Opaque Meal.

Again has it been possible by radiography to render the invisible visible, and to put facts into the hands of physicians and surgeons which have revolutionized our ideas as regards the stomach and many of its disorders, which have proved beyond all doubt that the ideas previously held as to the possibility of mapping out a stomach by auscultation, percussion, etc., were absurd, and which are of the greatest diagnostic value and assistance in the directions of treatment and of surgical interference. Salts of bismuth and of barium are opaque to *x* rays, and certain of them, suitably prepared, can be safely taken in doses amounting to even 6 oz. at a time. Mixed with food, the food is made opaque to the rays, and a picture of this food as it is acted upon by the walls of the stomach or bowel can be seen on the screen, or recorded upon a plate. Neither the stomach nor the bowel are really made visible, but as the walls of these organs contract on any contents, and as the food fills up irregularities of shape, the shadow of the food really becomes the shadow of the organ containing it. The exact shape, size, and position of the living stomach in its natural conditions as it contains food in various amounts is an *x*-ray fact, and an *x*-ray fact alone; and it is of importance to remember that these facts are demonstrable in any position of the body, standing or lying down. In the pre-*x*-ray days a physician, usually irrespective of any preparation of the stomach, would by means of percussion, etc., draw an outline on the abdominal wall and say, "That is the outline of the stomach." There were no means by which these results could be controlled and verified. He would be a bold man indeed who would attempt to uphold such views now, when his outline drawings could be contrasted with the definite *x*-ray picture. One thing I believe *x* rays have done of the greatest importance—they have relegated that refuge of the destitute, "atonic dyspepsia," a diagnosis which has been used to cover up a multitude of sins, to the records of the past, and they have demonstrated that at any rate "chronic indigestion" is an organic condition, direct or indirect. Not every disease of the stomach or bowel can be diagnosed by means of radiography. Often the diagnosis is unexpected and obvious; for instance, in such conditions as hour-glass constriction from ulcer, or in malignant disease which has caused an alteration in the shape of the stomach; more often, perhaps, without definitely recording an exact diagnosis, the examination puts the physician in possession of facts as to the size, shape, contractions, and emptying which can only be revealed by *x* rays, and with these facts added to the history of the case the diagnosis becomes an easy one. An important point is that the question of operation is often decided by the *x*-ray examination. Often, very often, in malignant disease of the stomach, radiography reveals such extensive mischief as to put any operation, even a short-circuiting one, completely out of court, and, on the other hand, the reverse is often the case and an operation clearly justifiable. At the present time every case of so-called "chronic indigestion," every case, indeed, in which the stomach or bowel, or both, are suspected as the cause of the symptoms, should be subjected to a complete *x*-ray investigation; except in the acute emergencies, operations on these organs are hardly justifiable until such an investigation has been made.

Uses in Other Regions.

I have taken these large divisions of *x*-ray work—fractures, the thorax, the urinary tract, and the stomach—as best illustrating the scope and value of this method of examination, but they by no means represent all that can be done. Radiography is of assistance in many intracranial conditions, in the examination of the sinuses of the head, in the diagnosis of gall stones, in the observation of all diseases of bones, in the deformities of bones, in the examination of the teeth, and I do not intend this to be taken as a complete list. Also I have not touched upon the demonstration of, and exact localization of, foreign bodies situated anywhere inside the human body. The war has brought this branch of work into great prominence, and, amongst other things, is said to have been responsible for the introduction of some 250 different methods of localization. At any rate, it is a very simple matter nowadays to mark a spot on the skin and tell the surgeon the exact depth of any foreign body which may be underneath it.

I have not dealt with *x* rays in the treatment of disease, in which they are of increasing value in a large number of conditions as control of the output of an *x*-ray tube is becoming more possible. In exophthalmic goitre, in glandular tuberculosis, in rodent ulcer, in many skin conditions, and, lastly, in the various forms of malignant disease, *x*-ray treatment, carried out carefully and methodically, is of great value. Again this must not be taken as a complete list.

Perhaps a further use for *x* rays has hardly occurred to you. Very early on it was found that diamonds were

transparent to *x* rays, whilst paste—imitation diamonds—was quite opaque. It is thus possible to make use of them for the purposes of differential diagnosis, but some very startling uses have been made of them in the past two years. Many cases of attempts at smuggling have been thwarted, and *x* rays have occupied an important part in locating contraband material. Rubber has been detected hidden in bales of cotton waste, and mine cases and asphyxiating bombs have been found with their help in the personal luggage of a traveller. In other directions industrial uses have been made of the rays. Flaws have been detected in steel casings, defects in insulating material detected, porousness revealed in copper. One of the largest commercial applications of the *x* ray is at a certain tobacco factory, where the cigars are made and packed in boxes, and the boxes are exposed to definite doses of *x* rays. The result is that the tobacco beetle larvae, which are so small that they cannot be seen and which are very destructive to cigars, are destroyed without any damage to the cigars.

The Limitations of X-ray Diagnosis.

In medicine there is just a tendency to rely too much upon *x*-ray diagnosis, and, indeed, to expect too much from an *x*-ray examination. The limitations of this method must be remembered. Many radiologists undoubtedly try to read too much from *x*-ray plates and screen examinations, are too much inclined to over-estimate the diagnostic possibilities; in this respect they have been encouraged to some extent by those who refer the cases, and who expect to have a definite opinion and diagnosis in return. As I have already pointed out, in many cases of intrathoracic disease, kidney stones, and stomach cases, the diagnosis by *x* rays is so striking, so apparent, that nothing more is required. Perhaps in a still larger number of cases the *x*-ray points, without being absolutely diagnostic, are of the greatest assistance and aid to diagnosis, and the radiologist best performs his duties as regard these cases when he reports his facts and points out their significance, but does not venture on dogmatic diagnoses without knowing something more about the case. This leads me to another point. At the present time there is a great deal, a very great deal, too much sending of cases of all kinds to the *x*-ray department before proper and systematic examination of such cases has been made in the usual ways. I am sure that no case should be sent for an *x*-ray examination until it has been thoroughly and completely investigated in other ways and a definite diagnosis suggested. I regret very much that it has almost become a routine at the Royal Infirmary for stomach cases to come down to the department very soon after admission, and without a single note in the case sheets. This is a bad system from every point of view—bad for the physician or surgeon in charge of the case, bad for the students, and bad for the *x*-ray department. Whilst instancing the stomach cases as bad offenders in this manner I do not intend my remarks to be limited to them.

Many of you students will eventually become practitioners in remote country districts at home, or in remote districts in many parts of the world, often far from all possibilities of having *x*-ray examinations made. You will not be able to have the radiographs and the expert opinion of the radiologist to lean upon. You will have of necessity to make your diagnoses without this aid. It therefore behoves you now—and your teachers should see to this—that you do not learn the habit of a casual examination of a patient and then the immediate resort to the *x*-ray room. I am convinced that no case, however simple, should be allowed to be sent from the out-patient or casualty department to the *x*-ray department until a complete and thorough examination has been made, and a definite conclusion as to the diagnosis arrived at and put in writing. After the *x*-ray examination the case should be re-examined with the *x*-ray findings known, and comparisons drawn. In the same way no case should come down from the wards until full examination and full notes have been made. Unless this is done we are going gradually to slip into loose methods of examination, and students will not acquire the routine of methodical examination, will not recognize the real value of physical signs, and will fail to acquire the great art of deductive diagnosis without which the successful practice of medicine and surgery is impossible.

Teaching of Radiology.

I have said nothing as to the teaching of radiology, but this is a large subject in itself. The time is rapidly approaching when this subject will have to be added to the curriculum, when the unfortunate student, already said to be overburdened with lectures, classes, and subjects, will have perforce to imbibe a certain amount of knowledge of *x*-ray diagnosis and treatment before he goes up for his final examination.

To my mind, the whole subject of medical and surgical teaching and examination requires drastic overhauling. I believe you are taught how to perform the most intricate surgical operations, the most special of special operations on the eye, ear, and throat; you are taught about the most rare diseases which mankind is heir to; you may be examined on these operations and diseases—about operations which probably none of you will ever perform, as to diseases which probably none of you will ever see. On the other hand, any knowledge of radiology, a subject which you are, so to speak, up against every day of your professional career, is not insisted upon, and you are neither taught it nor are you examined upon it. I take it that at the present time, if an examiner either asked you any question as to radiography or showed you a radiograph and asked you to interpret it, you would be entitled to say that it was not any part of your examination work—although very possibly an answer of this kind would not be wise. However, if such a thing happened, you may take it from me that, with few exceptions, the examiner will know just about as much, or even less, than you—he has never been taught any radiography either.

There is a prevalent idea abroad that a radiologist is a mere photographer, and that any medical man can interpret radiographs. Never was there a greater mistake. The technique of plate-taking can be easily acquired by anyone; the more experienced one has become in the interpretation of radiographic findings the more conservative one becomes, and the more guarded in expressing dogmatic opinions. The examination of the thorax and abdomen can only be carried out by duly qualified, and especially qualified, medical men. I came across a case the other day in which clinically there was an obvious fracture of the upper end of the fibula; the ankle had also been injured, but radiographs showed no fracture in this region. The eminent surgeon whose case it was, was addressing his students; he could not understand why the radiograph of the knee did not show the fracture of the fibula—it showed how unreliable *x*-ray evidence could be, etc. The eminent surgeon, unfortunately, was looking at the plate of the ankle-joint, and did not know it was not the knee-joint. This is a fact—I need scarcely say that he was not a Liverpool surgeon.

In conclusion, I would urge each one of you that whilst you make a point of attending the *x*-ray department and become acquainted with its routine and with the general scope of its work, you do not also, especially in your student days, rely too much on this method of diagnosis to the exclusion of the development of those faculties of observation and deduction which are so important to a successful practitioner of medicine and surgery.

LIGATION OF THE INNOMINATE ARTERY FOR TRAUMATIC ANEURYSM OF THE CAROTID.

By Colonel THOMAS SINCLAIR, F.R.C.S., A.M.S.,
CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE, FRANCE.

Since the successful ligation of the innominate artery by A. W. Smyth, of New Orleans, in 1864, this vessel has occasionally been tied, though not so frequently as to render uninteresting a description of a recent case. It may also be desirable to record it as a contribution to the statistics of military surgery in the present war.

An officer, aged 20, was shot, on August 24th, 1916, in the lower part of the right anterior triangle, the bullet issuing close to the superior angle of the scapula on the same side. He lay out for thirteen hours, during which time he bled so profusely as to saturate his tunic and necessitate dressing four times.

He was admitted to a casualty clearing station on August 25th, 1916, and though he recovered speedily from shock, he showed marked anaemia. A traumatic arterial aneurysm

formed in the lower part of the common carotid, which was treated expectantly for some days, but the rapid daily enlargement compelled operation on the fourteenth day. By this time the aneurysm had attained the size of an orange, filling up the interval between the clavicle and the upper border of the thyroid cartilage, extending across to the line of the common carotid of the left side and overhanging the subclavian on the right. Its approximate measurements were 4½ in. in breadth by 4 in. in height. Hoarseness developed in the later days, pointing to pressure on the recurrent laryngeal nerve. The respirations were 24; the temperature varied from 100° to 101.8°, and the pulse from 100 to 112. Both entrance and exit wounds suppurated moderately.

Operation.

The artery was exposed by a rectangular incision in the midline and along the clavicle. After detachment of the sternal head and part of the clavicular head of the sterno-mastoid and partial division of the sterno-hyoid and sterno-thyroid muscles, it was found that no space was available between the clavicle and the aneurysm. Therefore, one and a quarter inches of the inner end of this bone were resected. The apex of the lung, with its uninjured pleura, appeared in the dissection. The inferior thyroid veins and the larger veins were retracted without damage; in fact, no artery or vein was clipped or ligatured throughout the operation. The innominate artery was found behind the middle of the manubrium, and in tracing it upward it became apparent that the common carotid was so incorporated in the aneurysm that the placing of a ligature upon it was impracticable, and therefore the innominate was tied with a single strand of No. 4 thirty-day catgut. The muscles were repaired with catgut sutures and a small drain tube left in for forty-eight hours.

The question of a distal ligature was now debated in obedience to the commonly accepted principle that the wounded artery should be doubly ligated and the contents of the sac turned out, or the sac excised, but these measures were advisedly omitted in this instance lest a copious bleeding from the sac in a markedly anaemic subject, or the prolonging of an already lengthy operation, should jeopardize the patient. It was felt that a distal ligature should be placed on the carotid some days later, should the progress disappoint. Fortunately, the need for this step did not arise.

The subsequent course was uneventful: no septic changes from the original bullet track were propagated to the operation wound; and the patient was evacuated to the base on September 16th, 1916.

Three months after operation (December 13th, 1916), an examination of the patient showed that no cerebral deterioration had resulted; his mental functions were normal. The vision of the right eye was perfect, though the vessels in the fundus were slightly reduced in size. There was no giddiness or disturbance of equilibration. The thrill, bruit, and pulsation could not be detected, and the aneurysmal swelling had entirely disappeared. A degree of muscular atrophy and the absence of the end of the clavicle rendered this examination more easy and convincing. Radial and ulnar pulses had not returned at the wrist; the circulation and sensation in the hand were good, but some feebleness with stiffening at the fingers remained, due, probably, to the prolonged disuse of the extremity rather than to tropho-neurotic changes. No doubt massage and exercises will remedy this temporary disablement. A satisfactory pseudo-arthrosis had formed with the first costal cartilage, and active shoulder and elbow movements were good.

The chief anxieties, apart from the immediate risks at the time of the operation, are secondary haemorrhage, septic complications in the neck and chest, embolism, and cerebral softening from ischaemia. Disastrous cerebral changes, which may begin in forty-eight hours or be delayed for a fortnight or longer, are more likely to arise in patients over 40 with arterio-sclerosis; but acute anaemia from recent haemorrhage may render even young persons liable. Detachment of emboli may, of course, occur under any condition, or at any age, but in the case here recorded the acceptance of some extra risk in this respect by omitting a distal ligature of the carotid, which shuts off useful refluent circulation through subclavian branches, was considered justifiable, in the expectation that the cerebral ischaemia might be rendered less profound and sudden in a very anaemic subject.

Surgeon-General Sir George H. Makins, in his admirable paper on "Vascular lesions in war," lays it down that, "In certain conditions a proximal ligature at the seat of election suffices to cure a false aneurysm; but the method is uncertain, and should not be adopted in any situation where the sac and the opening in the vessel can be dealt with locally." In a later paragraph, dealing with carotid aneurysms in particular, he says: "Still I think the more extensive operations must be used with judgement, since they are obviously more risky procedures if a large sac is present."

It is noteworthy that cerebral complications are more frequent after ligation of the common carotid than after ligation of the innominate artery. Delbet estimates their incidence at one-fifth and Jordan at one-fourth under modern surgical technique. Burns of Memphis in 1908, in a record of fifty-one innominate cases with eleven recoveries, speaks of six dying from shock, six from cerebral complications, and the balance from septic wound infections and secondary haemorrhage.

Various methods of exposing the innominate artery have been devised: Trephining the manubrium; vertical splitting of the manubrium; clipping away the upper margin of the manubrium, with resection of one or both sterno-clavicular joints—even the first costal cartilage has been resected; temporary displacement of the clavicle; resection of the sternal end of the clavicle. The last-mentioned plan was adopted and gave ample access. It was deemed better than temporary displacement of the bone, which, by its dangerous traction on the aneurysm and the subsequent difficulty of retaining it on replacement in its old socket, did not commend itself in this instance.

Major Gask, Captain Chubb, and Captain Manford kindly assisted at the operation, and took charge of the case after it; and the later treatment in London was carefully supervised by Mr. Laming Evans.

EARLY TREATMENT OF COMPOUND FRACTURE OF THE LONG BONES OF THE EXTREMITIES.

BY BASIL HUGHES, CAPTAIN R.A.M.C.(T.F.).

THE early treatment of compound fracture of the longer bones of the extremities forms a large and important branch of military surgery. Upon what is done for men suffering from such wounds in the hours immediately following their infliction depends to great extent their subsequent utility, and often their life.

There are points of difference between these fractures and compound fractures seen in civil life. In the latter there is not the same quality of damage to bone and the soft parts, and we have not the same type of infection to deal with. Further, in civil life men are not injured under the conditions which obtain in war.

In the case of a man wounded in action, we must consider (*a*) fatigue; (*b*) shock (specially in fractures involving the femur); (*c*) local tissue stupor; (*d*) infection.

Fatigue is a powerful predisposing cause to wound infection and to other trench ailments. I have pointed this out in connexion with "trench feet" and "trench pyrexias." Life in trenches under the conditions that exist there, with lack of sleep, are potent causes in producing trench fatigue. It is noticeable how rapidly rigor mortis occurs in men killed in the trenches.

Shock.—With severe wounds of soft parts, specially the thigh with fracture of the femur, shock is immediate and severe. It is not necessarily associated with loss of blood. It is much increased by motor transport if the limb is not securely immobilized.

Local Tissue Stupor.—This condition is brought about in the muscles and other soft structures as a result of injury caused by a piece of shell. The naked-eye appearance of such tissue is characteristic. The muscle looks dry and lifeless, it is quite insensitive, does not bleed when cut, and does not contract when stimulated. This tissue, though not dead, is very apt to die, and while in this stunned state is very prone to infection. If a tourniquet be applied to the limb above such tissue, or if antiseptics be used, gangrene is almost certain to ensue. Under these conditions, if necessary, a limb can be amputated quite painlessly. This I have done on more than one occasion in the trenches, and the cases have done well.

Infection.—All shell wounds are bound to become infected, whatever care be taken. This statement is clear to those of us who have had experience in the front line. Predisposing causes are fatigue, exposure to wet and cold, nerve strain, and tissue stupor. The bacteria most to be feared are: (*a*) *B. perfringens*, (*b*) Vincent's bacillus, (*c*) *B. tetanus*, and (*d*) *Streptococcus faecalis*.

It is therefore important as early as possible to follow out the rules applying to open wounds—namely: (1) Prevent further infection; (2) get rid, as far as is possible, of infection already carried in; and, in cases of fracture, a third may be added: (3) Prevent what infection has

already been carried in from becoming further disseminated by thoroughly immobilizing the limb.

Quite a number of wounds, chiefly in men who have lain out, though not always so, have become fly-blown, and within a very short time contain an abundance of maggots. The presence of maggots in such wounds seems to exert an inhibitory action on the growth of the more virulent bacteria, and so acts beneficially. Maggots only thrive in dead tissue, and seem to hasten its removal. Two of the worst buttock wounds that I saw became accidentally fly-blown, and from the time of the appearance of the maggots both cases started to improve.

Question of Transport.

From the battlefield these wounded men have to be carried to the regimental aid post or the advanced dressing station. From the latter place they go by motor transport to the field ambulance. This part of the journey has, as a rule, to be as rapid as possible, owing to enemy shell fire.

This necessitates shaking, and brings into consideration other complications—namely: (*a*) Embolism (pulmonary); (*b*) increased shock; (*c*) increased damage to tissue and so further dissemination of infection; (*d*) haemorrhage.

Embolism has happened frequently, and I have seen it occur between the firing line and the regimental aid post, and on several occasions it has occurred in the motor ambulance.

Increased shock has been occasioned by the pulling on large nerves of the fractured limb, and increased damage to tissue has taken place owing to the fractured ends of the bones having too free play amongst the soft parts.

Haemorrhage has also occurred during motor transport from divided vessels and from the fractured ends of the bone.

Early Immobilization.

From the field ambulance these men proceed by motor to the casualty clearing station, often a considerable journey. The condition of their wounds on arrival will depend upon the length of time they have been wounded and the manner in which the fracture has been immobilized.

If, therefore, the immobilization of the fracture be imperfect, especially in cases involving the femur, extensive and often irretrievable damage may happen both to limb and patient during motor transport. Perfect immobilization, as early as is possible, in the position in which the fractured limb is found, whether in trenches or in the open, is the first essential to success.

The earliest treatment falls to the lot of the regimental medical officer. When active fighting is in progress he has more than he can do, hence the importance of instructing stretcher-bearers and additional combatants in the first aid treatment of fractures.

This work has usually to be carried out under heavy fire, often for hours on end. It is this that makes the task of the regimental medical officer the most arduous and difficult of all. It calls for unlimited resource and endurance. Some cases have reached the clearing stations direct from the front line with serious compound fractures of the thigh perfectly immobilized, having travelled painlessly for some miles over rough roads. In other cases the splint has slipped, despite the time taken and patience exercised in fixing it. These latter cases suffer much pain during motor transit, shock is increased, infection is further disseminated, more damage is done to the soft parts, and haemorrhage has often taken place. If a limb is hopelessly shattered, with vessels and nerves divided, it is wiser to amputate at once at the regimental aid post, and tie the main vessels. Owing to tissue stupor the operation is painless, and the risk of shock and fatal haemorrhage during transport is avoided.

Tourniquets for transport should not be used. They tend to slip; they are painful, and increase shock; and they cause irretrievable damage to the tissues they constrict. From what I have seen of cases arriving at clearing stations with tourniquets applied, I am convinced that earlier amputation is the correct procedure, for such amputations do well.

The all-important part of conservative treatment in the line is a perfect immobilization of the fracture as it exists. There should be no attempt to reduce these fractures in the line, as infection is only further disseminated. This should be left until the casualty clearing station is reached and the wound can be disinfected.

Fractures of the bones of the forearm and leg do not usually show much displacement. For the leg the rifle makes a good temporary splint if padded with sandbags, and the limb so fixed is bandaged to its fellow of the opposite side. Sandbags rolled and stiffened with cardboard make excellent splints. For the forearm a clean sandbag rolled up makes a comfortable and efficient splint, and the arm is put in a sling.

Femur.

When the femur is the bone involved I have found the following method give good fixation for motor transport. A rifle padded with sandbags or a great-coat is placed with the butt end in the axilla. A strip of wood four or five inches broad broken off a ration box and rolled in another sandbag is fixed between the leg and the lower end of the rifle. The rifle is firmly secured around the chest with puttees, and is fixed to the leg below the knee with another puttee, the padded piece of wood intervening. Another strip of wood six or seven inches broad, broken off a ration box and padded with sandbags, supports the thigh behind, while a third piece, similarly padded, and reaching from the perineum to as far down the leg as possible, supports the thigh internally. The thigh, with its internal and posterior supports, is now fastened securely with puttees to the rifle. The limb so splinted is now securely bandaged to its fellow of the opposite side. Cases so treated have always travelled well.

Some fractured femurs have, on their way to the clearing stations, been put upon Liston's long splints, Page's splints, and the like, but invariably these splints have slipped, and have not proved efficient for motor transport.

Humerus.

Fractures of the humerus can be immobilized with rolled sandbags strengthened with entrenching-tool handles. The arm should be put in a sling and bandaged to the side. The bandages or puttees fixing the splint should not be applied too tightly, as the circulation is thereby impeded, and serious consequences result.

Treatment at Casualty Clearing Station.

At the casualty clearing station these men are divested of their dirty clothes and provided with thick woollen pyjamas without disturbing the fracture. If the case is urgent and requiring amputation it is dealt with at once, but if not it is better to wait two or three hours. Chloroform induction, followed by open ether, has been the anaesthetic used, and if the case is severe subcutaneous saline, two or more pints, are slowly run in during the operation.

Not until the patient is anaesthetized is the splint removed and the wound examined. The skin is shaved, cleaned with petrol, and painted over with iodine. The edges of the wound are clearly cut away with all dead and stunned tissue in the wound itself. Foreign bodies are removed. Foreign bodies carried in the trouser pocket are apt to be driven into the thigh by a missile. I have extracted coins, buttons, a pencil, and even a piece of a miniature New Testament, from the soft tissues of the thigh.

After free removal of bad tissue with foreign bodies, the wound is thoroughly disinfected with hydrogen peroxide, and gauze wrung out of it is placed over the wound. Detached fragments of bone have been left if not too badly soiled and still attached to periosteum. Small spicules and completely detached pieces only have been removed. All bleeding vessels have been twisted off and not ligatured.

Traction is now made in the long axis of the limb by an orderly, while the fractured ends with detached fragments are manipulated into position by the surgeon. The splint is then applied with the extension apparatus before the final dressing of the wound, and the surgeon should satisfy himself that such a splint is adequately keeping up the reduction of the fracture before he adjusts the final dressing. Suture of a wound after excision has not been practised in wounds complicated by fracture of the long bones of the extremities.

Femur.

If the fracture be not too high up and complicated with wounds of the buttock, the perineum, or its immediate vicinity, then Thomas's knee splint gives the best fixation. Fracture of the shaft of the femur is often complicated with haemarthrosis of the knee, making extension and adequate fixation all-important as a safeguard against extending sepsis, which in a fissured bone progresses at the rate of about one inch a day.

Extension between the tuber ischii and the lower bar of the splint is maintained by strapping from the leg (Fig. 1). The lower free ends of the strapping are turned back, and through the loops so formed a piece of wood (A) is inserted. A stout piece of rubber tubing (B) passes round this piece of wood, and is fixed, after being put on the stretch, to the lower bar of the splint. This gives an excellent uniform extension, and is proof against jars that may happen during the journey to the base.

The thigh is supported behind by troughs of perforated zinc fixed to the bars of the splint, and a back splint

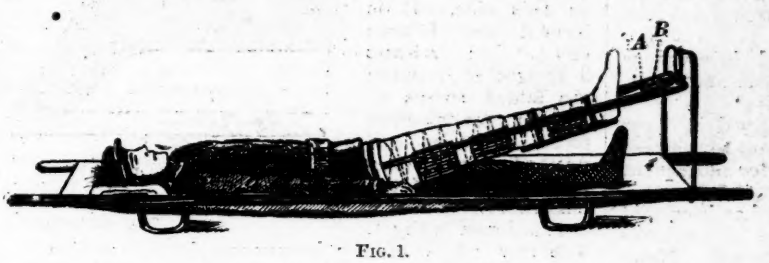

FIG. 1.

extending from just above the knee to the foot further steadies all. In the absence of perforated zinc, three-corner bandages have answered well.

The final dressing is now applied, and the lower end of the splint is suspended to the support bar provided with the service stretcher. The wound can now be inspected without disturbing the splint. Fig. 1 shows the apparatus applied, and the wounded man on the stretcher ready for transport to the base hospital.

If the fracture is high up and complicated with wounds about the perineum or buttock, the splint illustrated in Fig. 2 will answer all requirements. It consists of a leather-padded ring for the axilla. The space from A to B can be varied by two adjustable screws, C. At D is a hinge allowing of abduction only. Four narrow strips of metal, E, project from the frame, and from their extremities leather straps are attached. Two of these encircle the chest and two the leg. Extension by rubber can be taken from the stirrup, F, at the bottom of the splint. G is an adjustable footpiece. The splint is further secured to the chest by a roller towel. The thigh is supported behind by a convenient back splint. The framework does not touch

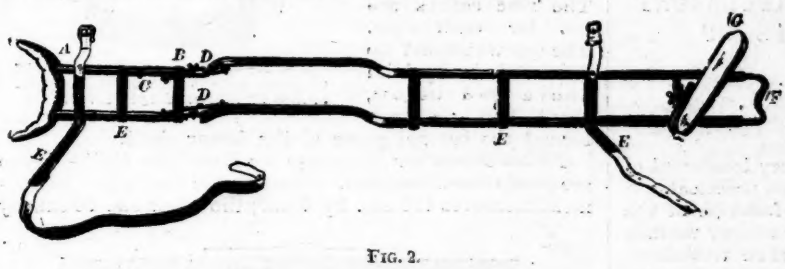

FIG. 2.

the thigh and allows of attention to the wound without disturbing the splint. This splint is also useful for fractures and wounds involving the hip-joint, allowing, as it does, of extension and abduction.

The Leg.

For fractures of the bones of the leg the splint illustrated in Fig. 3 will be found useful. It consists of two bars, A, ending behind in a broad-based stand, B, and connected behind by a curved bar, C; D is an adjustable footpiece. The space between C and D is made good by adjustable troughs of perforated zinc, E. On the footpiece is fixed an iron strap, F, to keep the foot in position. Dressings can be changed without disturbing the splint, and the stand, B, not only steadies the splint during transport, but, with the adjustable footpiece, affords

FIG. 3.

slight flexion at the knee, which adds to the patient's comfort.

Humerus and Forearm.

One of the most satisfactory splints for fractures of the humerus is the principle of Thomas's knee splint applied to the arm by Colonel Robert Jones. It is, however, not an easy splint for travelling, and is apt to get knocked.

Fig. 4 shows a splint which is useful for all fractures involving the upper extremity. It consists of a bent, leather-padded piece of iron, A, hinged on to a horseshoe-shaped piece of iron, B. This is again hinged so as to rotate horizontally at C. From this point a bar of iron passes down below to D and is here bent. This bar of iron, which is of adjustable length between C and D by means of a screw E, is hinged to a trapezium iron frame at F and G. Thus abduction and

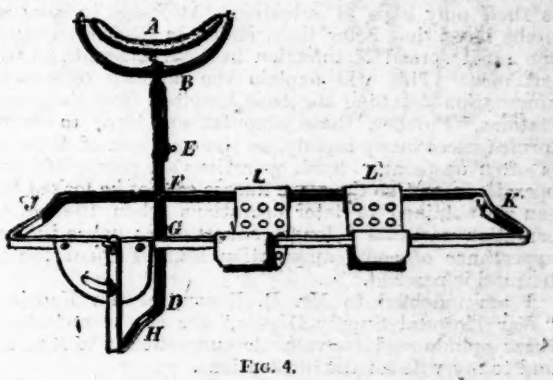

FIG. 4.

rotation are allowed to the humerus, and flexion is allowed for injuries about the elbow-joint. Extension for a fractured humerus is taken between the axilla and the bar H. Extension for the forearm is taken between the bars J and K. The forearm rests in adjustable troughs of perforated zinc, L. By bending up the distal part of the horizontal portion of the splint dorsiflexion for the wrist may be acquired.

The splint is efficacious, light, and easy to adjust, and answers all requirements for fractures of the upper extremity.

The Dressing.

If the wound be extensive, the dressing used for the first few days before sending these cases to the base has either been a salt pack or Carrel's tubes with Dakin's solution. The latter method requires more time, and can only be undertaken when there is not an undue rush of casualties. The salt pack has given good results, and does not require the same amount of attention.

After-Treatment.

This consists in treating the general condition and the wound. Plenty of fluid (water), nourishment of all kinds, with a brisk purge, are the main essentials, combined with rest in bed. Fatigue and shock are the conditions which militate against success for the day or two following the

operation. Saline given subcutaneously helps very much to combat these. If the temperature rises and there is pain, disinclination for food, and vomiting, the wound should be examined, and fresh spread of sepsis looked for. Should such be present and threaten life, amputation by the rapid circular method should be performed without delay.

If infection still persists in the wound, and is spreading, though not sufficiently to threaten life, treatment will depend upon the organism present. If *B. perfringens* and *Streptococcus faecalis* (for these two organisms generally coexist) be the cause, then a barrier of hydrogen peroxide or potassium permanganate (strong solution) injected into sound tissue above and below the infected area, and completely encircling the limb, has done good in some cases and sufficed to arrest further spread. Further incision and drainage of the affected part may be needed, and this can be combined with continuous irrigation of the wound with normal or slightly hypertonic saline solution, alternating with eusol.

If the infection be pyogenic, hot antiseptic fomentations, or charcoal and carbolic poultices, will often limit the process.

In a few desperate cases I have tried intravenous injections of eusol, as recommended by Fraser and Bates, but have had no success from its use.

Stimulants may be freely given, and do good in these cases. As soon as possible these men are sent to the base hospital, where more perfect conveniences for subsequent treatment exist.

It must be clearly understood that what has been said in this article refers only to the treatment of fractures between the firing line and the clearing stations. Many cases of serious compound fractures arrive at the clearing stations in a very septic and foul condition. The general condition of such wounded men is grave, and amputation is their only hope of salvation. Attempts to save such limbs have, time after time, ended in disaster, owing to the rapid spread of infection in these fatigued and worn-out men. This will explain the number of cases of amputation reaching the base hospitals from the clearing stations. Further, these amputations have to be performed exceedingly rapidly, as the condition of these men is often desperate. Such operations are purely life-saving operations, and so the same finesse cannot be looked for as can be obtained in later operations when the patient's condition warrants a longer anaesthetic; hence the crude appearance of some amputation stumps when the base hospital is reached.

I am indebted to Mr. R. Brown, of the Kensington "War Hospital Supply Dépôts," for the manufacture of these splints and for valuable suggestions; to Miss Hope and to my wife for the illustrations.

AN APPLIANCE FOR THE AMBULATORY TREATMENT OF FRACTURES OF THE THIGH.

By C. MAX PAGE, M.S., F.R.C.S.,
Captain R.A.M.C.(S.R.).

The importance and value of the ambulatory treatment of fractures of the femur at the earliest period practicable is well recognized. The restoration of full function of the limb, the union of the bone, and the repair of any wounds present are all favourably influenced by such treatment. Hardly less important is the improvement in the *moral* of the patient which occurs once he is able to move about again independently.

The apparatus which I propose to describe is made and applied by the surgeon from inexpensive and readily available material. Its chief advantage over the calliper type of splint is that at a certain period it leaves the knee-joint free.

Description of the Appliance.

The appliance in its simplest form consists of two plaster-of-Paris collars; the upper one surrounds the thigh at the level of the great trochanter, and abuts on the tuber ischii; the lower is moulded on to the two condyles of the femur just above the level of the knee-joint. These two *points d'appui* are united by two extension screws, which lie just behind the central coronal plane of the femur.

The extension screws, when adjusted, procure long axis extension of the femur, and pass the weight of the body taken on the foot from just above the knee direct to the pelvis.

The principle employed is similar to that of Hackenbruch's "Distraktion-klammer."[1] The fixation at the knee is that used by Professor Delbet[2] in his spring splint for the thigh.

As indicated above, the appliance leaves the knee-joint free. If it is used in a case where little or no union is present, fixation of the knee-joint and an extension of the lower *point d'appui* to the ankle should be effected for a short period.

Detail of Material.

The upper collar or ischial saddle is made from tarlatan. This material (cost about 3d. a yard) is usually sold 65 cm. wide. All descriptions below will be based on this size. It is formed as follows (Fig. 1): About 5 metres of tarlatan are folded so as to make a parallelogram 65 cm. by 25 cm., and containing twenty thicknesses of the material. This is then cut as shown in Fig. 1.

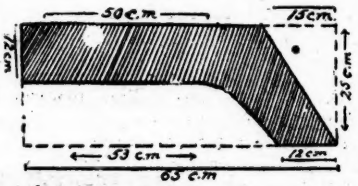

Fig. 1.—Ischial saddle, diagram of tarlatan section required; scale 1/10. It should contain twenty thicknesses of material.

The raw edges of the boomerang-shaped section are then roughly tacked. It has merely to be dipped into a plaster emulsion before use.

The lower collar is made from one five-yard quick-drying plaster bandage 3 in. wide.

The extension screws are similar to those used for the wooden type of Macintyre splint. The most useful size for adult thighs measures 10 in. when screwed home, and 14 in. when fully extended. The two screws are attached to arches of perforated zinc by means of split rivets (Fig. 2). The zinc collars are cut for each case. The screws should lie symmetrically both above and below, about half an inch behind the coronal plane of the femur shaft.

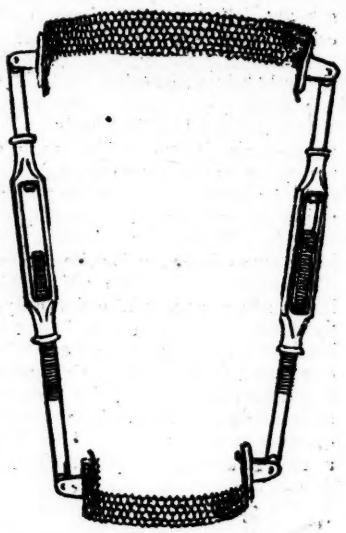

Fig. 2.—Extension unit, consisting of two screws attached to zinc arches by means of split rivets.

Tailed Pieces for Attaching the Extension Unit.—These are made from tarlatan. The one for the ischial attachment measures 110 cm. by 4 cm.; the lower one 90 cm. by

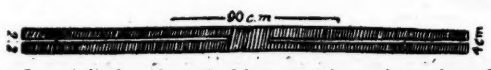

Fig. 3.—A tail-piece for attaching extension unit to the collars. The one illustrated measures 90 cm. and is for application to the supracondylar collar. It should contain twelve thicknesses of tarlatan.

4 cm. (Fig. 3). Both should contain twelve thicknesses of material. They are cut like an elongated H, and the margins afterwards roughly tacked.

Application of the Apparatus.

Preparation of the Skin.—The skin around the ischial area and above the condyles should be rubbed with spirit, dried, and powdered daily, for a short period before the application. The thigh should be shaved.

An anaesthetic is only necessary in the case of very recent fractures.

Position.—The patient is placed (Fig. 4) on the operating table, and the trunk raised by resting it on a padded box. The lower edge of this should extend to about the third piece of the sacrum. The man is held in position by a perineal strut pegged into a prolongation from the deep

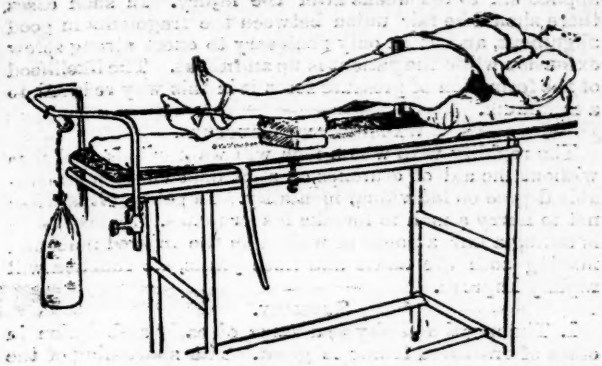

FIG. 4.—Position of patient, showing body rest, perineal prop, and method of leg extension during application of the apparatus.

surface of the box. The injured leg is steadied and extended by a weight attached to the foot by a cord which passes through a pulley hung on a bracket at the end of the table. A couple of sandbags support the limb just below the knee.

Application of Collars.

The supracondylar collar is formed by winding a 3-inch plaster bandage, moistened in hot water, around the thigh just above the knee. It is applied evenly and without tension, the upper margin lying about one inch above the upper surface of the condyles. The collar is then moulded above the condyles by the steady pressure of the tips of the fingers of either hand. The grooves so made are kept under moderate pressure till the plaster has set, say five minutes.

The ischial saddle is then applied. The section of tarlatan (Fig. 1) is dipped in a warm plaster emulsion of average consistence, and is then wrapped round the thigh, so that the peak or angle lies a couple of inches above and a little to the outer side of the tuber ischii. The whole is then fixed and reinforced by half a dozen turns of a plaster bandage. A groove is then moulded by steady pressure just below the tuberosity.

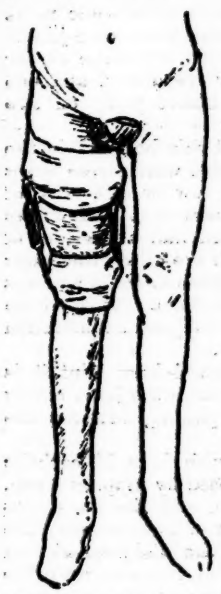

FIG. 5.—Front view of ambulatory appliance complete; no fixation of the knee.

The extension unit (Fig. 2) is then placed on the collars; the zinc arches lie on the front surface of the collars. The screws should be so adjusted that their lower extremities lie over the grooves above the condyles and level with the posterior surface of the femur. Care should be taken to place the upper extremity of the inner screw low enough for it not to foul the perineum when the screws are tightened up. The upper extremity of the outer screw should lie at the level of the great trochanter and just behind the posterior border of the latter.

Fixation of the Extension Unit.—The tailed pieces (Fig. 3) are dipped in plaster emulsion. The long one (110 cm.) is used for the ischial saddle, the other one (90 cm.) for the supracondylar collar. The base of the tailed piece is placed against the back of the collar opposite to the zinc arch, and the four tails are woven firmly round the extremities of the screws and over the zinc arches. The apparatus so completed is shown in Fig. 5.

Hardening of the Plaster.

This under usual conditions should be complete in about twenty-four hours. For this time a firm cushion must be kept under the pelvis in order to prevent deformation of the ischial saddle. Extension through the screws should not be applied during this period; if continuous extension be necessary it should be maintained by weight traction. Posterior support of the fracture can be obtained, if necessary, by passing a broad webbing strap from extension screw to extension screw over a firm pad applied to the exposed posterior surface of the femur.

Fixation of the Knee.

In almost all cases it will be found better to fix the knee in an extended position for the first few days that the patient is up. As soon as the muscles controlling the knee-joint (especially the quadriceps extensor) have recovered some function, knee fixation can be dispensed with, if union of the fracture is moderately advanced. For this temporary

FIG. 6.—Front view of ambulatory appliance with Delbet leg extension.

FIG. 7.—Back view of ambulatory apparatus with Delbet extension; posterior support to the thigh is not shown.

fixation any well-moulded back splint will serve. In those cases in which little union is present, and therefore in which considerable and continuous screw extension must be maintained, it is better to fix the knee in an apparatus which extends the purchase of the lower *point d'appui*. I have found Delbet's method of plaster fixation for the leg[2] the most satisfactory for this purpose. It is a little clumsy, but it leaves the ankle-joint free, and gets a firm purchase on the malleoli and back of the heel. The apparatus applied with this extension is shown in Figs. 6 and 7. The extension is made up from the following tarlatan units:

FIG. 8.—Heel-piece.

FIG. 9.—Tibial band.

FIG. 10.—Side-pieces.

Diagrams of tarlatan units for Delbet's leg extension (introduced primarily for use in fractures of the tibia); scale 1/10. Each section is formed of eighteen thicknesses of the material.

1. The heel-piece (Fig. 8) contains eighteen thicknesses of the material, and is cut from a parallelogram 65 cm. by 15 cm., as shown in the figure, leaving a central heel flap 22 cm. wide, and two tails of the same length and about 4 cm. deep.

2. The tibial band (Fig. 9) measures 65 cm. by 6 cm., and contains eighteen thicknesses of material.

3. Two side-pieces 65 cm. by 9 cm. and of the same density.

4. A many-tailed bandage about 50 cm. square. The tails should be about 6 cm. deep and overlap half of the adjacent ones.

Application of Leg Fixation in Extension of the Supracondylar Collar.

The sections of tarlatan (1, 2, and 3) are dipped in plaster.

The heel-piece is then spread out on the table below the foot, with the tails perpendicular to the axis of the leg. The lower margin of the heel flap is flush with the sole of the foot; the tails will lie just above the level of the ankle.

The tibial band is spread out perpendicular to the leg just below the level of the tibial tubercle.

The side-pieces are then applied. The lower extremity lies flush with the sole of the foot, the upper extremity is incorporated with the supracondylar collar and turned back on itself to reinforce the plaster at the knee level.

Completion of Leg Extension.—While the side-pieces are held in position by an assistant, the tails of the heel-piece are wound firmly around, obliquely (Fig. 7), so as to bind the side-pieces. The tibial band is then wrapped round the leg horizontally, performing a like function above. The many-tailed bandage is then firmly applied over all, so as to mould the plaster on to the bony prominences while the plaster is in course of setting.

After-Care.

As with all plaster appliances in which pressure over bony parts is exerted, the main difficulty is the avoidance of pressure sores. For this appliance no form of padding is required, but sometimes a flannel lining to the *lower* part of the supracondylar collar may be used. Sores may appear over (1) the ischium, (2) the condyles, or (3) at the lower margins of the supracondylar collar. Their appearance can be avoided in any of these localities if due care be taken. As a first measure the preliminary hardening of the skin over exposed points by means of friction and the application of spirit is important.

The skin under the ischial saddle can be kept in perfect condition by the regular friction, and introduction of powder, effected by the passage of a "scratcher" of flannel. This consists of a strip of flannel passed between the skin and the plaster in front where there is no pressure. The "scratcher" is powdered, and worked backwards and forwards twice daily round the whole circumference of the ischial saddle. A similar appliance can be used for the supracondylar collar. Additional precautions to be taken at this level are (*a*) not to squeeze inwards too tightly when the collar is being moulded on to the condyles; (*b*) to cut away the lower edge of the collar at any place where it tends to dig into the skin. The screws should be left as slack as is safe when the patient is in bed.

Life of the Apparatus.

From the point of view of rigidity the collars, if they are set properly, will outlast the period of treatment. They may work too loose if they have been applied to a swollen thigh which decreases rapidly in size. Usually, however, the thigh swells a good deal when the patient first gets up; gradually, as this oedema disappears, the musculature improves, and so the collars maintain their hold. The extension screws may work loose in their bedding if this has not been soundly effected. They can easily be reset on the old collars with fresh H tailpieces. As a general rule, it is desirable to change the ischial collar after four to six weeks' use, if the apparatus is still necessary.

Type of Fractures Suited to the Appliance.

Simple Fractures.—Any simple fracture in which long axis extension maintains good alignment may be so treated. Plated fractures come under this category.

Gunshot and other Compound Fractures.—I have chiefly used the apparatus for cases of this kind, and have found it well adapted to fractures in the middle third of the femur. If there is a suppurating wound which would come under the ischial collar the apparatus cannot be used. In the case of compound fractures in the lower third of the femur, and in which the wound would be fouled by the supracondylar collar, the same principle can be applied by replacing the supracondylar collar by a plaster taking its purchase from about the ankle-joint. This involves fixation of the knee.

Time of Application.

The apparatus can be used in simple fractures as early as the eighth day. Its use at such a period involves continuous screw extension and fixation of the knee. In gunshot fractures I have found it most satisfactory when applied six to ten weeks after the injury. In such cases there should be fair union between the fragments in good alignment, and it is only necessary to exert strong screw extension while the patient is up and about. The likelihood of the formation of pressure sores is in this way reduced to a minimum.

Walking and Crutches.

The rapidity with which men will walk in this appliance without the aid of crutches or stick depends to a remarkable degree on individual mentality. In general it is wiser not to hurry a man to forsake his crutches. So long as he is taking a fair amount of weight on the injured limb, and moving both the ankle and knee joints, its function will rapidly improve.

Summary.

1. The moral and physical value of early ambulation in cases of fractured femur is great. The shortening of the period of convalescence so produced is at the present time very valuable.
2. The apparatus described can be fitted by any surgeon at a small cost.
3. When union of the fracture is fairly firm this apparatus permits of movement at the knee-joint.
4. The appliance is most easily managed when some union is present, and in general should be applied from six to ten weeks after the injury.

I am indebted to Lieutenant-Colonel S. G. Butler, D.S.O., R.A.M.C., for permission to publish these notes, and to Captain J. N. Fergusson, R.A.M.C.(T.C.) for the preparation of the photographs.

References.

[1] Hackenbruch, *Muench. med. Woch.*, 1912, lix, p. 1487. [2] Delbet and Laman, *Presse médicale*, December 2nd, 1915.

THE DRAINAGE OF SEPTIC KNEE-JOINTS.

BY

W. A. CARLINE, Lieut.-Colonel, R.A.M.C.(T.),

LINCOLN.

The very interesting article on the treatment of septic knee-joints by Colonel Andrew Fullerton in the JOURNAL of November 25th, 1916, induces me to give some notes of the methods adopted by me for draining the knee-joint.

Having no notes to refer to I can only recall the earlier cases, which impressed me by their frequency, and one recent case I operated upon shortly before going on two months' sick leave.

Septic knees were more common at this hospital in the early days of the war, and in one small ward seven cases were treated by drainage within a few weeks. Six of these recovered, some with good movement and others with a stiff joint. The case that died had a fracture of one thigh and a bullet wound through the other, the latter being very septic; the knee-joint became infected and was drained, but the patient died of septicaemia. At this time there were no conveniences for bacteriological examination nor for electrolysis with chlorine ions.

In a large number of cases of infected knee-joint it is possible to pass a drainage tube through the joint cavity on the inner side without the tube passing between the bones.

The early cases were washed out with 1 in 20 carbolic acid solution. All the tubes were closed by nipping them, except that engaged by the syringe, and the knee-joint fully distended by the disinfectant; the tube nearest the back of the joint was then freed and the disinfectant and pus allowed to escape, the process being repeated until the disinfectant came away free from pus. This treatment will be ineffectual unless the surgeon personally sees that it is carefully and efficiently carried out, and if he does so there should be no danger of "the entrance of microbes other than the original offenders," as suggested by Colonel Fullerton.

In the early Seventies the late Mr. T. Sympson treated cases of pelvic and other deep-seated abscess at the Lincoln County Hospital by a method then called hyperdistension. The abscess was opened by a valvular incision, and the pus

evacuated as far as possible; the cavity was then hyperdistended with a saturated solution of boric acid and again evacuated, the process being repeated until the fluid came away free from pus. I was much impressed by one of his cases (pelvic abscess following on confinement) which was cured in about ten days. I have had many successful cases since in treating deep-seated abscess in this manner, and the method I have described for treating infected knee-joints is only another application of it.

Many other cases of septic knee-joint have been treated at this hospital and cured with more or less stiff joints, and one of my colleagues informs me that he has had very satisfactory results from the same methods.

Lately I washed out the joint with a saturated solution of magnesium sulphate. The patient when operated on (October 19th) had a temperature of 104° F.; this had declined to normal on November 11th; there was one rise to 101° eight days later; the infection was streptococcal. The patient has now a slightly movable joint, which it is hoped will improve under chlorine ions.

I am aware that there are surgeons who claim that a stiff knee is not so useful as an artificial limb—a statement easily made but lacking in proof. The point could only be settled if some one with a useful stiff knee had subsequently to undergo amputation of the thigh owing to an accident.

INTRAVENOUS INJECTIONS OF ANTIMONY IN THE TREATMENT OF MALARIA.

BY

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AND

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(From the London School of Tropical Medicine.)

IN the BRITISH MEDICAL JOURNAL for January 6th, 1917, Rogers described in a preliminary note the disappearance of crescents from the blood following intravenous injections of tartar emetic.

Ross[1] suggested that this work should be followed up at once by careful and long-continued researches by enumerative methods for the purpose of establishing the point with certainty. He indicated that such methods are the only ones which will finally settle the question, because the parasites vary naturally to such a degree from day to day that it is always difficult to distinguish between accidental and therapeutic improvements.

A case of heavy crescent infection being available at the Albert Dock Hospital, London School of Tropical Medicine, the opportunity was taken of giving antimony injections, a careful daily estimation of the crescents being made afterwards. The vitality of the parasites was also tested to determine whether they would flagellate or not after the administration of the drug.

These tests were begun on January 17th, the patient being kept in bed during the course. The accompanying table shows the results at a glance. The method of counting was as follows: Five hundred leucocytes were counted in well spread out films daily, the films always being taken at the same hour—11 a.m.; the crescents noted during these counts were carefully recorded. As the total number of leucocytes per cubic millimetre was low (between 4,500 and 6,000 during the counts), the time expended on getting the 500 in the films was considerable, practically the whole of a large slide having to be gone over. The method is not one of the greatest accuracy, it is true, but it sufficed for the purpose in this instance, as the parasites were so numerous.

A study of the table shows that the antimony had not the slightest effect on the crescents, their number fluctuating up and down quite irrespective of the injections. Six intravenous injections in all were given, beginning with 1 grain and increasing to 2½ grains, the last three consisting of the maximum dose. That the parasites were not dead was proved by the fact that they were alive and active in fresh blood, and proceeded to flagel ation in a normal manner. In addition to the crescents a scanty ring infection was also present; again the drug appeared to have no effect upon these.

Date.	Treatment.	Crescents.	Rings.	Leucocytes Counted.	Date.	Treatment.	Crescents.	Rings.	Leucocytes Counted.
1917 Jan 17		162	+	500	1917 Feb. 5	A.T. gr.ijss	49	++	500
,, 18	A.T. gr.j	69	++	500	,, 6		42	–	500
,, 19		151	–	500	,, 7		48	–	500
,, 20		28	+	500	,, 8		64	–	500
,, 21		57	–	500	,, 9	Quinine gr.x twice daily; liq arsenicalis m 2 t.i.d.	20	+	500
,, 22	A.T. gr.jss	34	+	500	,, 10		18	–	500
,, 23		55	+	500	,, 11				
,, 24		69	++	500	,, 12	Ditto	8	–	500
,, 25	A.T. gr.ij	37	–	500	,, 13	Ditto	56	–	500
,, 26		50	+	500	,, 14	Quinine gr.x twice daily; liq. arsenicalis m 3 t.i.d.	7	–	500
,, 27		47	–	500	,, 15		15	–	500
,, 28		30	+	500	,, 16		3	–	500
,, 29	A.T. gr.ijss	134	+	500	,, 17	Ditto	4	–	500
,, 30		172	+	500	,, 18	Ditto	3	–	500
,, 31		60	–	500	,, 19	Ditto	36	–	500
Feb. 1	A.T. gr.ijss	52	–	500	,, 20	Quinine gr.x twice daily; liq. arsenicalis m 4 t.i.d.	10	–	500
,, 2		42	–	500	,, 21		7	–	500
,, 3		73	–	500	,, 22		2	–	500
,, 4		26	–	500					

A.T. = Antimonium tartaratum. First dose, January 18th, 3 p.m.; crescent count on that day from film taken 11 a.m., future counts also taken at same hour.

Leucocytes per cubic millimetre scanty, varying from 4,500 to 6,000 during the above counts.

After it was seen that no good was accruing to the patient from the antimony he was put upon quinine and increasing doses of arsenic, and the beneficial results of these are also brought out in the table.

One case does not prove a point, but, granting this, it is difficult to suppose that such injections would sterilize other cases after their complete failure in that here described.

Another point against the drug is Colonel Jackson's case of kala-azar, also mentioned in Ross's letter, which had a relapse of benign tertian malaria after long intravenous antimony treatment.[2]

It will be interesting to await the experiences of others who may try the drug.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, January 27th, 1917. [2] *Indian Med. Gazette*, December, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN APPARATUS FOR HOT-BATH TREATMENT IN WOUNDS OF THE LIMBS WHILE THE PATIENT IS IN BED.

SINCE hot-bath treatment is nowadays such a popular method of cleaning and combating sepsis in open gunshot wounds, it may be useful to describe a simple apparatus for giving this treatment to a patient in bed, without inconvenience. We employ two what might be termed bags made of indiarubber mackintosh sheeting, one inner and one outer. The inner one takes the form of a cylinder and is slid on up the arm or leg to cover the wound. It is made in such a way that it can be approximated to the skin above and below by means of plain indiarubber bandages; these bandages are only lightly applied. There is a tube of entrance and another of exit.

If we now run in water, with the exit tube closed by a clip, it will be found that, after filling the space between the skin and cylinder, the water will slowly drip out from under the loosely-applied bandages. To catch and collect this dripping water the outer bag is used. It takes the

form of a long, narrow kit-bag, which is made to reach to the top of the thigh in the case of the leg, and to the axilla in that of the arm. It has a tube of exit at the bottom which passes out of the bed into a pail or bucket.

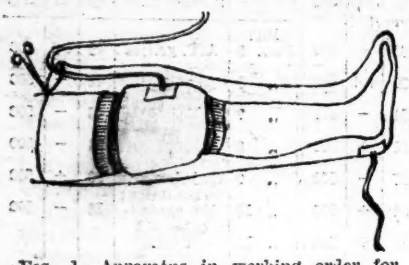

FIG. 1.—Apparatus in working order for a wound on the thigh.

It might be argued that in the case of a leg wound the water would escape into the bed through the upper end of the outer bag; if, however, two blocks are placed under the legs at the top of the bed, the water runs down and the outer bag is clipped at the top with a pair of Spencer Wells forceps, leaving the resulting fold uppermost; this fold is utilized as a means of entrance for the supply pipe. As a supply reservoir a two-gallon Lysol jar is used, which can be stood beside the bed on the patient's locker. Into the water in the jar is placed an electric heater, and into the circuit between the electric heater and the plug in the wall is fitted an ordinary electric light switch, which the patient can hold in bed. A screw clip is fixed on the supply tube, so that the rate of inflow can be controlled. Having put on the bags, and filled the reservoir with water, the rest can safely be left to the patient. He can switch the electric current off and on as he likes, he can feel the temperature of the water by placing his hand against the glass reservoir, and can regulate the inflow by the screw clip on the pipe. He can roll about in bed as much as he likes, and he can be entirely covered up with bedclothes.

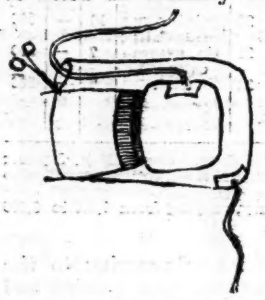

FIG. 2.—The bags in position for an amputation stump. The bags can be easily sterilized by wiping them down with some antiseptic solution, or by boiling.

From this description it will be apparent how readily we can give bath treatment to wounds in such awkward places as the knee, thigh, or upper arm. Amputation stumps can be dealt with in the same way, providing there is sufficient stump. In these cases the inner cylinder is replaced by a small edition of the outer bag. The amputation stump bag is found very useful, especially for the leg, even if bath treatment is only employed to clean the wounds prior to re-amputation.

The whole apparatus, including set of bags for arm, leg, and amputation stump, is made by Messrs. Allen and Hanburys.

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GENERALIZED POST-DIPHTHERIAL PARALYSIS.

A CHILD, aged 3½ years, was taken ill on November 8th, 1916. The case was diagnosed as diphtheria and admitted to the isolation hospital on November 9th. The symptoms were headache, vomiting, sore throat, and enlarged cervical glands; the temperature was 100.2° and the pulse 116.

When the child came into hospital the throat was very "dirty" and antitoxin (4,000 units) was administered. The report of the bacteriologist on the swab was "a very strong growth of *B. diphtheriae*."

Rectal salines (5 ounces) were administered for three days. The temperature stayed about 100° for four days, after that it never rose above 99°. The pulse went down to 86 on the fifth day.

On the ninth day the patient's voice became very nasal, and on the tenth day she had a very severe attack of vomiting, and on the eleventh the colour became very bad and the pulse was poor and thready. Again salines were administered and she became much better. On the seventeenth day after admission squint was very noticeable. On this day a swab was taken and the result was "no *B. diphtheriae*, but staphylococci and streptococci numerous."

On the eighteenth day paralysis of the muscles at the back of the neck occurred, and if the child was raised up from the bed by the hands the head fell back at once almost to right angles with the body. The paralysis was marked for about four weeks, but improved on small doses of strychnine and massage of the affected part. The patient was for some time unable to turn the head from side to side. Complete recovery ensued.

J. S. PEEBLES, L.R.C.S. and P.Edin., D.P.H.,
M.O.H. Ogmore and Garw Urban District Council

Reports of Societies.

THE LOUSE PROBLEM.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on February 23rd, Dr. C. J. MARTIN being in the chair, Mr. A. W. BACOT pointed out that of the three varieties of lice parasitic upon man only one, the *Pediculus humanus* (clothes louse) was of sufficient importance as a disease transmitter to cause serious anxiety. *Pediculus capitis* was so closely related that it could only grudgingly be allowed specific rank apart from the latter, and he did not deal with *Phthirius pubis* (crab louse). He described the life-history and characteristics of *Pediculus humanus*, and summarized the features of practical importance from the point of view of sanitary precautions. Under normal conditions—namely, in clothing that was constantly worn—eggs took seven to ten days to hatch; if clothing was discarded or allowed to cool for a period each day, the time might be extended to five weeks. Active lice could exist without food and apart from any host for periods up to nine days. Young lice took from ten to fourteen days to attain sexual maturity. Females, after attaining maturity, required two to four days before they commenced to oviposit. Egg production could not take place without food or under cool conditions (below 65° F.). Eggs laid by unpaired females did not hatch. Impregnation was not effective for more than twenty days. As many as 10 or 12 eggs a day might be laid by each female, and each might lay a total of 300 eggs. After reaching maturity the female might live for forty-six days, and before the close of her life a single female might have 4,160 living offspring. Pediculosis, he said, was a sign of a low standard of life. With the possession of a change of garments and the institution of the weekly washing of shirts and underclothing, the number of the parasites was speedily reduced; when sufficient means and leisure obtained among the people to allow of the regular change and cleaning of bedding as well as of clothing, *Pediculus humanus* must die out. With the advent of war armies were plunged back into a condition of barbarism, in which the washing and changing of garments, not to mention bedding, was erratic, and might not take place for weeks or months. The solution of the problem depended either upon campaigning under a civilized standard of life or upon the adoption of efficient remedies for the destruction of lice. In the West the stable front had rendered it possible for the troops in the field to enjoy, in large measure, the civilized custom of the washing and changing of clothing, but in the actual fighting line and in other areas this had not been found practicable, and dependence upon insecticides was essential. It was necessary to use relatively stable slow-acting remedies, in addition to one with a quick action of short duration. Those most serviceable in emergencies were impracticable for continuous use owing to the large quantity which their rapid evaporation rendered necessary. The treatment of discarded clothing should, wherever possible, depend upon the action of dry heat as more economical than hot fluids or steam. A chamber for drying clothes once established might be maintained above the level of the temperature necessary for the destruction of lice and nits, especially as it was almost certain that the same temperature would destroy the active females of the sarcoptes which caused scabies. The necessary temperature was 52° C. for thirty minutes, and hence, allowing a margin for contingencies, one of 55° C. for this period would be high enough if the garments were spread and hung. If great speed and economy of fuel were desired, a tubular oven with travelling hangers

could be arranged on the principle of a biscuit bakery. In washing or steaming garments or bedding the same temperature for thirty minutes was sufficient, and if penetration were obtained, the addition of chemicals was superfluous. If, on the other hand, the nits and lice could be killed more conveniently or cheaply by chemicals it was wasteful to use heat in addition. For dug-outs he advised that the woodwork should be flat-oiled if practicable, as creosote oil was very deadly to insects, and its application might considerably reduce the risks from lice resting on the woodwork. Treatment with Colorado vermin killer would be about equally efficacious. He described experiments he had undertaken which showed that, for practical purposes, it was necessary to use almost all insecticides as if they had a contact value only, because under conditions of use the diffusion of vapour at a concentration sufficient to kill was limited to so small an area that the advantage of the vapour poison over a contact one was of little or no moment. The main points for consideration were cost, speed of action in relation to its duration, and the manner in which the preparation was to be used. The difficulty with some very efficient remedies was to devise some means of distributing them evenly over the garments in quantities sufficiently small not to be disagreeable or wasteful, using, if possible, some vehicle which, retarding over-speedy action, rendered it effective over a longer period. For this purpose soap was very useful as it supplied an easy means of making a paste; if an emulsion of the remedy with soap was possible, impregnation by watery solution of any strength could be attained. Soap brought the remedy into contact with the surface of the insects easily and surely, and also aided in removing dirt. The only remedies which fulfilled these conditions experimentally were crude carbolic acid and cresol. The most feasible and effective method of use was to emulsify them with soft soap, using from 40 per cent. to 50 per cent. of soap. A perfect emulsion was produced at a heat sufficient to melt the soap. The correct strength of the solution to be used for impregnating the garments ranged from 5 per cent. to 10 per cent. During summer he had found that a shirt treated with a 5 per cent. solution was efficient in the destruction of lice for a period of five or six days; during the winter a 10 per cent. solution was necessary to produce the same results. Treated flannel could be kept for at least fifteen days before use without losing its efficiency. Thorough drying of the garment was essential before wearing. The fault of this remedy was that it was rather slow, and did not prevent feeding until in full action. The most efficient quick-acting remedy of low cost was naphthalene, especially in its crude cheap form. When used between clothing and body it killed in about two or three hours, and feeding was seldom observed to occur during the tests. Unless continued action was desired the quantity need not be large. It was more rapid in action when used as a powder, or when the fabric was impregnated with it, than if put up in packets. The impregnation of garments or blankets with it was not difficult, as it was readily soluble in benzine, methylated spirit and paraffin, and, what was more important, by heat in oil or oily fluids, which could subsequently be emulsified. At a concentration of 10 mg. per square inch it would kill all the lice present within two or three hours, but would be inactive within five. It was therefore unsuited for the purposes for which the crude carbolic soft soap emulsion was so well adapted, but as an adjunct to these for individual use in case of emergency it was invaluable, and might be supplied as a powder or put up as a paste by mixing with soft soap for the purpose of smearing it along the seams of garments. Mr. Bacot then dealt shortly with some other remedies, such as iodoform and cytisine, vermijelly, sulphur, anthracene, tar oil, sassafras oil, Legroux's method, and certain proprietary articles. None of these, he considered, satisfied the necessary conditions as nearly as the methods already described. Tar oil emulsion and a 5 per cent. solution of crude carbolic soft soap emulsion might be used for the treatment of heads; they were more effective than paraffin and cheaper than sassafras oil. For nits in the seams of clothing, either of these, or the Colorado vermin killer, would be effective, but the latter would be too irritating if it came into direct contact with the skin.

DISCUSSION.

Professor G. H. F. NUTTALL said that he had been unable from a study of the material of five continents to find any constant morphological differences between *Pediculus humanus* and *Pediculus capitis*. The average temperature of the body's surface clothed in a condition of comfort had been found to be 32° C., and this appeared to be the optimum temperature for lice. At 32° C. the metamorphosis occurred in seven days. At 30° C. it was delayed to twelve or so. He had deferred the hatching of eggs to thirty-five days by subjecting them for certain periods to lower temperatures. He could confirm the observation that if lice were more efficiently fed more eggs were laid. In experiments where they had been given opportunities for unlimited feeding he had found that the number of eggs laid was ten each day. The longest period of survival of unfed lice was ten days, during which time they presumably drew upon the large fat-body stored in them. Under normal conditions the life-cycle was complete in seventeen days. The conclusion with regard to their destruction was that few of the remedies proposed were of any use. He agreed that dry heat at 60° C. was the best for infected articles. It was essential that the hot air should circulate freely. The storing of infected clothing was another method. Naphthalene and sulphur had been tried very thoroughly in the German army and had been found inefficient. The Clayton apparatus injured metal, fur, and fabrics; it was not cheap, and its odour clung to clothing for a long time. Carbon bisulphide was inflammable and sometimes had a toxic influence. Five per cent. carbolic acid as a head wash had been found useful, and cresol soap gave satisfactory results. Silk underwear afforded a measure of protection, but if pediculi could not get wool they would lay on silk. The only way to remove dead nits from uniforms, etc., was mechanically or by singeing.

The discussion was continued by Professor MAXWELL LEFROY, Mr. F. M. HOWLETT, and Lieutenant-Colonel S. A. M. COPEMAN; and Mr. BACOT replied.

THE PRINCIPLES OF THE TRANSFUSION OF BLOOD.

AT a meeting of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine on February 20th, the President, Dr. W. HALE WHITE, being in the chair, Dr. A. E. STANSFELD read a paper in which he said that the idea of the transfusion of blood from the healthy to the sick had appealed to the imagination of the profession for centuries, but no considerable progress had been made until recent years owing to the difficulties which the operation presented, and to the dangerous reactions which sometimes followed the more successful attempts. But the revived enthusiasm for transfusion during the last decade had finally established its value upon a sound experimental and clinical basis. Transfusion had been successfully employed in the treatment of various kinds of anaemia and in the arrest of spontaneous haemorrhage, whilst in combating serious infections and certain toxaemias, such as those of pregnancy, promising results had been obtained. How far the serum was responsible for these results it was not yet possible to say. So far as disintoxication and immunity were concerned transfusion might be merely a convenient method of transferring healthy or immune serum to the patient, but it was not proposed to deal with the domain of serum therapy. Blood therapy was still in its infancy; it could not be tested properly until an elaborate technique had been perfected and certain accidents liable to result from the chance admixture of different bloods had been excluded.

The advantage of transfusion in the case of patients who had been rendered anaemic by recent haemorrhage was sufficiently clear, but since the average existence of the transfused cells in the circulation of the recipient was no longer than ten days, it could do no permanent good in cases of anaemia due to other causes unless blood formation were stimulated or blood destruction diminished in the patient's own body. He recounted cases in which he had employed this method of treatment, including aplastic anaemia, spontaneous haemorrhages, and pernicious anaemia. Nine cases of the last had been so treated, eight of which had been selected because they were making no progress or steadily becoming worse under other methods of treatment, and one because the condition was regarded as too serious to justify a trial of other methods. Of these nine, four showed very marked improvement; three, of

whom two were still under treatment, showed definite but less improvement; one was merely kept alive for several weeks, and one derived practically no benefit.

The ultimate prognosis in cases of anaemia depended upon the power of reaction in the bone marrow, and this could only be determined adequately by observing the results of treatment. In cases of pernicious anaemia both increased red cell production and diminished red cell destruction might result from transfusion. The age of the patient, the duration of the disease, and the condition of the bone marrow, as indicated in the peripheral blood, had hitherto proved to be the best guide to the progress subsequent to transfusion. The optimum dosage for transfusion was not yet determined, but it was probable that moderate repeated doses were preferable to large single doses in the treatment of chronic anaemias. Very small doses might sometimes be of value. The results which he had obtained in cases of pernicious anaemia with 250 c.cm. doses compared favourably, even after a single transfusion, with those reported in America after such excessive doses as 1,000 c.cm. or more. The donor should be a healthy adult, with negative Wassermann reaction. His serum should not agglutinate the corpuscles of the patient, and the patient's serum should not agglutinate the donor's corpuscles. Agglutinins should be excluded by tests done immediately before the transfusion, and a single examination was not sufficient to establish the compatibility of two bloods on all future occasions. If agglutinins were absent, haemolysins would also be absent. If there were great urgency, and testing of the blood of patient and donor were impracticable, a small preliminary transfusion should be done half an hour before the main mass of blood was transfused, so that gross incompatibility might be recognized in time. Febrile reactions occurred after about 25 per cent. of transfusions, even though the bloods of donor and patient had been shown to be compatible. Rigors occurred in about 10 per cent. of the cases. It might prove desirable to investigate the bloods of donor and patient with regard to factors of which as yet nothing was known, not merely for the sake of avoiding accidents, but also to determine whether a given donor was likely to afford the maximum of benefit in a particular case. The methods which had been employed were direct, by anastomosis of vessels, with or without a cannula; or indirect (1) by transferring a syringe from a needle in the vein of the donor to a needle in the vein of the recipient, or by using a syringe with a two-way tap leading to the veins of the donor and recipient; (2) by the use of a receiver, either with a paraffin lining or with the addition of anticoagulant. The indirect method, by employing a glass receiver and sufficient sodium citrate to prevent coagulation of the transfused blood, was simple and involved no special dangers.

CONTINUOUS SPONGES FOR LAPAROTOMY.

AT a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on February 2nd Sir WILLIAM SMYLY said that the continuous sponges introduced by Dr. Crossen, and fully described by him in the *American Journal of Obstetrics*, vol. lix, 1909, were designed to prevent the possibility of a sponge being left in the abdominal cavity during an abdominal operation; he claimed that by their use that object was attained, and further, that it was the only method in existence which did it. Having used these sponges for some months, he felt satisfied that they were under no circumstances inferior to or less convenient than separate sponges, but were better in many ways. They saved the labour and expense involved in the preparation and control of separate sponges.

Dr. MADILL said that, while he saw the good points of the routine, he had been unfortunate on the only occasion in which he had used the sponges. The case was one of pus tubes, where a great amount of sponging was required, and in manipulating the bag the entire sponge tumbled out; this he attributed to the want of practice of his assistant.

Dr. ALFRED SMITH, while aware of the advantages of the continuous sponges claimed by American operators, was satisfied with the security given by the "check" adopted in the gynaecological department of St. Vincent's Hospital, where the operator controlled the entire "team." Sponges in bundles of ten were counted under his observation, in an audible tone, from the bundle to the receiving basin. Before closing the abdomen all sponges were again counted, and hung upon a wooden horse provided for the purpose.

Dr. BETHEL SOLOMONS said that while he had never had any mishaps with the single-sponge method, having seen the continuous sponges in use under Sir William Smyly's guidance, he was struck by their advantages. He saw the slight disadvantages that might be present when working in different private homes or with different assistants. In minor laparotomies they might be extravagant, but the advantages were much greater than the disadvantages. Dr. R. WHITE considered that there would be difficulty in teaching the assistant to use the sponges correctly, and that there was a great danger of infecting the unused portion; but Dr. SHEILL remarked that it would be a simple matter to so design the bag and to so fold the continuous sponge that it would be quite impossible accidentally to pluck out the whole of it at one time. He suggested a bag triangular in section with the apex as the opening.

The PRESIDENT (Dr. Gibbon FitzGibbon) said there was always the fallibility of a count, and in difficult pus cases, where sponges were used rapidly, the risk was greatest, and the count could not be checked by the operator. He had tried the continuous sponge in one case, which, unfortunately, was a difficult one, and found the method inconvenient at first, but he thought the continuous sponge was an advance in operative methods, and was the way in which the risk of leaving sponges in the abdomen could be completely guarded against. It should be given a prolonged trial.

Reviews.

CHEMICAL PHYSIOLOGY.

PROFESSOR HALLIBURTON'S well-known *Essentials of Chemical Physiology*,[1] first published in 1893, has now reached its ninth edition. The previous edition came out in 1914, and full justice was done to its merits in a review published in the BRITISH MEDICAL JOURNAL of June 27th, 1914, on p. 1411. The ninth edition has all the virtues of the eighth, and has been thoroughly revised. It contains new sections on such subjects as the ninhydrin reaction, the urease method of estimating urea, the volumetric process for estimating sulphates, and the Lewis-Benedict method for determining the sugar in blood. The book is full of information that will be of service to the student in his examinations, the more so if he chances to be an exceptionally gifted chemist and therefore able to understand what he has to learn. When he has passed his examinations no doubt Dame Nature will see to it that he remembers no more of these *Essentials* than will be of practical service to him.

One of the books that is indispensable to physiologists and physiological chemists is HAMMARSTEN'S *Textbook of Physiological Chemistry*.[2] The eighth German edition of this Swedish professor's work has been translated by Professor MANDEL, and will be welcomed by all students of the subject. Professor Hammarsten, with the help of Professor Hedin, has brought the volume well up to date, and has valuable pages on colloids, osmosis, catalysis, and enzymes in the first chapter; these are all subjects of increasing importance in both physiology and medicine. The next three chapters deal with the proteins, carbohydrates, and fats in a general and specific way. The last thirteen chapters discuss the various solids, fluids, and organic processes of the body. The translation is excellent, the index fairly complete. The book has long been a standard work on the subject; it should be within the reach of all students of physiology and medicine.

Professor A. J. SMITH has performed a useful piece of work in translating the second of Professor VON FÜRTH'S

[1] *The Essentials of Chemical Physiology, for the Use of Students.* By W. D. Halliburton, M.D., LL.D., F.R.S., F.R.C.P. Ninth edition. London: Longmans, Green and Co. 1916. (Demy 8vo, pp. 332; 72 figures. 6s net.)

[2] *A Textbook of Physiological Chemistry.* By O. Hammarsten, with the collaboration of S. G. Hedin. Authorized translation from the Author's enlarged and revised eighth German edition by J. A. Mandel, Sc.D. Seventh edition. New York; J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1914. (Med. 8vo, pp. 1054. 17s. net.)

two volumes dealing with the problems of physiological and pathological chemistry.[3] This volume contains twenty-five well written and fully documented essays on metabolism. The first five essays, or chapters, deal with problems in the chemistry of protein digestion. The next four are occupied with certain forms of nitrogenous excretion and purin metabolism. After this come four chapters on carbohydrate metabolism and diabetes. The rest of the book contains essays on such subjects as fat metabolism, the organs with internal secretions, acetone bodies and lactic acid, the nutritional requirements of the body, unorganized ferments, gas exchanges in the body, and fever. The Vienna professor writes with knowledge and authority; Professor Smith has done his part of the work satisfactorily, producing a readable translation. The book may be said to contain the most up-to date views and facts bearing on the many important metabolic problems with which it deals. It may be recommended to physiologists and to medical men and students with a scientific bent who are not to be intimidated by chemical formulas and the array of solid phalanxes of scientific facts. These essays have no direct practical bearing on medicine, perhaps, but no medical practitioner can read them without acquiring illumination on the obscurities of the physiological processes resulting in life, health, or sickness.

AMPUTATIONS.

Ligations and Amputations[4] is an English translation by Mr. ERNEST WARD, F.R.C.S., of a book by M. BROCA, of Paris, primarily intended for medical students doing a course of operative surgery on the cadaver; but it may well be of use at the present time to those who are called upon to operate as a result of the European war. The set operations of ligature of the vessels are clearly described and figured. The most striking part of the book is that devoted to amputation. The operations are described in great detail, and illustrated by figures which show every step, and follow one another in such close sequence that they may almost be compared to a cinematograph film. They are extremely well done, and show clearly the relative positions of operator and assistant. The text is so arranged that there is no need to turn over pages to find the accompanying illustration, and it becomes easy to follow every detail of each operation.

A chapter is devoted to the choice of operation, and the various factors determining this choice are discussed. All the well known amputations are described and figured, which is no doubt necessary, as the book is intended primarily for examination purposes.

As the result of the present war some views with regard to amputations have been modified. Those who have to do with the after-treatment of amputations, and more especially with regard to the fitting of artificial limbs, are without doubt in the best position to speak with authority on this subject. Their experience appears to show that certain amputations and disarticulations, such as Lisfranc's, Chopart's, disarticulations at the knee, wrist, and elbow, are of little value. Though the practical importance of these sections of the book is thus curtailed, this fact may make little difference from the student's point of view, as he may expect to be examined for generations to come on operations that are seldom performed.

BACTERIOLOGY AND HAEMATOLOGY.

DR. W. D'ESTE EMERY'S well known book on *Clinical Bacteriology and Haematology for Practitioners*,[5] now in its fifth edition, is an excellent work that contains all the practical instruction and advice required by the general practitioner of medicine, and but little that he will regard as superfluous. No better handbook for the laboratory could be desired. Two-thirds of the volume are given to bacteriology, the apparatus and processes employed being first described, then the methods of diagnosis employed in some twenty conditions of disease, and finally the methods of collecting and examining morbid materials. To diseases of the blood twenty pages are given, and cytodiagnosis is briefly but adequately considered at the end of the volume. The text is clearly written, direct, and practical. The plates and figures illustrating it are well executed; perhaps it would be an advantage if reference to these could be inserted in the index, and it may be noted that the word "streptothricosis" on pages ix and 77 should be "streptotrichosis." The book should be in the hands of all medical students and practitioners called on to make bacteriological and other laboratory diagnoses. We wish it all the success it deserves.

The eighth edition of MCFARLAND'S *Textbook of Pathogenic Bacteria and Protozoa*,[6] written for the use of students of medicine and physicians of every class, is described by its author as a medical work. The first twenty chapters and 300 pages are given to a general account of the subject; the remaining twenty chapters describe the specific micro-organisms of the chief infectious diseases. A clear and concise account of the subject is given, the information being almost entirely bacteriological and such as is of use in the laboratory; comparatively little medical or clinical knowledge has been incorporated in the various chapters, and very little pathological detail is to be found in the book. The illustrations are for the most part excellent. References to the literature are given; here the author is generally several years behind the times, and a good deal might be done towards bringing the book more up to date. Numerous errors are made in the spelling of the Latin and Greek names. The fact that Dr. McFarland's book has reached its eighth edition in twenty years may be taken as proof of its excellence and of the fact that it supplies a want in America. It may be recommended to those who find themselves dissatisfied with the various excellent bacteriological manuals of home production, for one reason or another, and wish for further light upon a rapidly progressing branch of science.

The *Laboratory Course in Serum Study*[7] followed by students in the bacteriological department of the College of Physicians and Surgeons at Columbia University, New York, contains thirty-three lessons in which the student traverses in practical work the whole range of immunization, serum testing, serum therapy in all its branches, and a few other closely allied subjects. Full details are given showing how the materials for experiment are prepared and how they are used, in both diagnosis and treatment. The course seems to be well thought out and complete; in the section on agglutinins, however, it would perhaps be better if the titration experiments were performed with smaller increments of agglutinin in the successive tubes. The method advised by the authors gives no indication either of the facility with which accurate measurements of agglutinating powers may be made, or of the great clinical value attaching to accuracy here.

NOTES ON BOOKS.

To all who have to use or deal in any way with the *x* rays we recommend the purchase of Captain G. W. C. KAYE'S admirable textbook on the subject,[8] now in its second edition. The reader will find in it a clear and intelligible account of a most complicated subject, presented without any excessive use of mathematical formulae, yet thorough and complete. The book is one primarily written, we suppose, for students of physics; yet it will be read with interest by many others who have only a comparatively trifling knowledge of physics as a science, and it certainly supplies a want long felt by many medical men and *x*-ray specialists with a desire to understand what they may of the mode of production and properties of the *x* rays of various qualities—wave lengths—they employ. Described

[3] *The Problems of Physiological and Pathological Chemistry of Metabolism; for Students, Physicians, Biologists, and Chemists.* By Dr. Otto von Fürth, Professor Extraordinary of Applied Medical Chemistry in Vienna. Authorized translation by A. J. Smith, Professor of Pathology and Comparative Pathology in the University of Pennsylvania. Philadelphia and London: J. B Lippincott Co. 1916. (Med. 8vo, pp. 682. 25s. net.)

[4] *Ligations and Amputations.* By A. Broca. Translated by E. Ward, M.A., M.D., F.R.C.S. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Toronto: The Macmillan Co. of Canada, Ltd. 1917. (Demy 8vo, pp. 291; 510 figures. 8s. 6d. net.)

[5] *Clinical Bacteriology and Haematology for Practitioners.* By W. d'Este Emery, M.D., B.Sc.Lond. Fifth edition. London: H. K. Lewis and Co., Limited. 1917. (Demy 8vo, pp. 344; 11 plates, 55 figures. 9s. net.)

[6] *A Textbook upon the Pathogenic Bacteria and Protozoa, for Students of Medicine and Physicians.* By J. McFarland, M.D., Sc.D. Eighth edition, revised. Philadelphia and London: W. B. Saunders Co. 1915. (Med. 8vo, pp. 807; 322 figures. 18s. net.)

[7] *A Laboratory Course in Serum Study: Bacteriology 208.* By Hans Zinsser, M.D., J. G. Hopkins, M.D., and R. Ottenberg, M.D. New York: The Macmillan Co. 1916. (Roy. 8vo. pp. 197. 5s. 6d. net.)

[8] *X Rays.* By G. W. C. Kaye, M.A., D.Sc., Captain R.E.(T.). Second edition. London: Longmans, Green, and Co. 1917. (Demy 8vo, pp. 306; 115 figures. 9s. net.)

by Captain Kaye, even so profound a conception as Planck's quantum hypothesis becomes comparatively intelligible to the reader who is not a physicist. The book has been brought up to date as far as the middle of the year 1916, and is well illustrated.

In the issue of *The Western Front*[9] for March Mr. MUIRHEAD BONE enters upon another phase of his pictorial record of the war, for he has five drawings from munition works. Three of them illustrate the making of a great gun in the gun pit—the hardening of steel, a gun jacket entering the oil tank, and the great clutches of the crane—and a fourth its mounting. A fifth is a sketch entitled "The Hall of the Million Shells," where the travelling cranes are driven by women in overhead carriages. The remainder of the number is occupied largely with trench scenery, reproducing the life and landscape of the western front. There are one or two drawings also of interiors, including one of sleeping wounded from the Somme. There has been an exhibition of the original drawings in New Bond Street; it is now closed, but is to be reopened presently in Edinburgh.

In his short essay on *Dreams*[10] Mr. J. W. WICKWAR gives an intelligent and common-sense account of the occurrence of dreams, their nature, and the natural limits that should be placed on their interpretation. He wisely devotes a chapter to demolishing the position of the modern psychoanalysts who seek so eagerly to give obscene interpretations to dreams, following the lead of certain German and Austrian writers.

The National League for Physical Education and Improvement does good work by its publications. In *Mothercraft*,[11] Parts I and II, sanitary inspectors, health visitors, and other workers interested in antenatal clinics, baby consultations, and similar educational gatherings, will find helpful lectures by experts on how the health of the unborn babe can be safeguarded, and similar subjects. A useful part of the book is that devoted to questions and answers, and the examiner's notes thereon in the various examinations that have been held on these lectures.

[9] *The Western Front.* Drawings by Muirhead Bone. Published for the Government by *Country Life*, Ltd. (Price 2s. net, monthly.)

[10] *Dreams: What They are and What They Mean.* By J. W. Wickwar. London: A. and F. Denny. 1917. (Fcap. 8vo, pp. 83. 1s net.)

[11] *Mothercraft.* A Selection from Courses of Lectures on Infant Care delivered under the auspices of the National Association for the Prevention of Infant Mortality. Parts I and II. Second edition, revised and enlarged. London: National League for Physical Education and Improvement. 1916. (Cr. 8vo, pp. 487. 4s. 6d net.)

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on February 13th, twenty cases were considered, and £162 was granted to fifteen of the applicants. Four of the applicants were elected to vacant annuities. The Committee also decided to increase the number of annuities by twelve. The following is a summary of some of the cases relieved:

Widow, aged 40, of F.R.C.S.Eng. who practised in Rotherhithe and died in 1913. Applicant was left without means, and took a house in June, 1914, on a three years' lease, on the Kent coast, for paying guests. The prospects were bright, but the war stopped all visitors, and she has had the house on her hands, and had to work as a nurse to pay the rent. The landlord had consented to release her of her responsibility if she paid £10. One son a foundation scholar at Epsom. Voted £10.

Widow, aged 42, of M.B., C.M.Glasg. who practised at Blackpool and died in 1911. Applicant was left without means with one daughter. Her health is very bad, and the Glasgow branch of the Guild has provided her with a temporary home and is giving her invalid comforts. The daughter, now 14 years of age, is earning 8s. a week. This is the only income. Voted £12.

M.D.St.Andrews, aged 72, and married. Was a missionary in India, and afterwards for many years practised in the city of London. He lost his practice through the premises he occupied being required for City improvements. Has recently had an hemiplegic attack and is quite unable to work. Voted £5 and elected to an annuity of £26.

Daughter, aged 43, of L.R.C.P.Edin. who practised at Wymondham and died in 1882. Applicant was left entirely without means, and went with her mother to France, where they acted as governesses. The mother died, and the applicant returned to England and tried to earn a living by teaching French and Spanish, but was not very successful. At the present time is in great poverty, and health very bad. Relieved twice, £7, in 1911. Voted £7.

Daughter, aged 57, of M.R.C.S.Eng. who practised at Rotherhithe and died in 1879. Applicant suffers from chronic glaucoma, but previously had earned a living as a nurse. Only income £24 from friends and small investment. Relieved eight times, £79. Voted £12 in twelve instalments.

Widow, aged 69, of M.R.C.S.Eng. who practised in London and died in 1893. Applicant is a cripple, and only able to earn very little as an artist. She owns a house which is let, but practically all the rent goes in repairs. Relieved twice, £22. Voted £12 in twelve instalments.

Daughter, aged 43, of M.R.C.S.Eng. who practised at Scarborough and died in 1879. Was left without means, and owing to ill health is not able to earn sufficient by nursing to pay her way. Relieved twelve times, £117. Voted £10 in two instalments.

Daughter, aged 55, of F.R.C.S.Eng. who practised at Bedford and died in 1890. Applicant earns a little in domestic service, but health will not permit her continuing in one place long. Has recently poisoned her thumb and is in great distress. At the request of the Guild visitor an emergency grant of £2 has been sent to her. Relieved eleven times, £88. Voted £12 in four instalments.

Widow, aged 48, of M.R.C.S.Eng. who practised at Deal and died in 1904. Only income £20 from dividends. Shares a home with mother and sister, whose means are limited. Unable to meet expenses owing to the high cost of food. Voted £10 in two instalments.

Daughter, aged 52, of M.R.C.S.Eng. who practised at St. Clear's and died in 1878. Applicant suffers from double spinal curvature. Her mother is an annuitant of the fund. Relieved three times, £18. Voted £6 in twelve instalments.

M.R.C.S.Eng., aged 49, who practised mainly in West Africa. He is totally incapacitated from work owing to sunstroke and other trouble. Lives with an aunt whose means are very limited. A relative allows £24 per year. Relieved three times, £25, last £5 in June, 1916, with permission to apply again in six months. Voted £5.

Daughter, aged 69, of M.R.C.S.Eng. who practised at Battle, Sussex, and died in 1873. Lives with sister, who can only help her a little. Suffers from rheumatism and bad sight. Relieved thirty-three times, £266. Voted £12 in twelve instalments.

Subscriptions may be sent to the Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

A MEETING of the Committee was held on February 22nd at the *Lancet* offices, when a printed statement was presented of the progress and working of the Fund during its first two years. The method of distribution of the statement was agreed upon. Owing to the expense of paper, postage, and labour, it was not considered a fair demand on the resources of the Fund to send copies to all subscribers.

A communication was read from the London Branch of the International Relief Committee to the Secretary, Dr. Sprigge, stating that it would still be possible to transmit the monthly grant of £800 to the Belgian medical organization, as had been done for some time through Mr. Herbert Hoover.

The financial statement showed that the contributions since December 15th, 1916, had amounted to £176, of which £147 had been received from the College of Physicians of Edinburgh as a final contribution; £2,400 had been sent to Belgium since that date.

The Fund has received through Dr. William B. Coley and Dr. William K. Draper, acting as a committee of the New York Academy of Medicine, the sum of £132 12s. 5d.

SUBSCRIPTIONS.

	£	s.	d.
Doctors in the Belgian Congo (per M. Boulanger)—Dr. Marsez, 200 fr.; Dr. Etienne, 500 fr; Dr. Heiberg, 500 fr.; Dr Dubois, 50 fr; Dr. Daniel, 100 fr.; Dr. De Lobelle, 500 fr; M. Pessaniti (pharmacien), 100 fr.; M. Boulanger (pharmacien), 100 fr	80	0	0
Dr. G. D. H. Carpenter (eighteenth, nineteenth, twentieth, twenty-first, and twenty-second donations—total, £22) ...	5	0	0
Royal College of Physicians of Edinburgh (per Dr. Norman Walker)	147	2	11
Doctors of Invercargill, N.Z. (per Dr. Colquhoun)	21	0	2
Dr. F. de Havilland Hall (sixth donation—total, £12)	2	0	0
Mr William Cook (per the *Chemist and Druggist*)	0	2	6
New York Academy of Medicine, 630 dols	132	12	5

British Medical Journal.

SATURDAY, MARCH 3RD, 1917.

MOBILIZATION OF THE PROFESSION.

THE Director-General of National Service, in his speech on February 6th, stated that it was the duty of his department "to see that the doctors are so mobilized and distributed that the needs both of the civil population and the army can be met." He has now announced in a letter addressed to the Central Medical War Committee, which is published in full in the SUPPLEMENT for this week, that he has decided to call a conference, comprising representatives of the Scottish Medical Service Emergency Committee, the Central Medical War Committee, and the Committee of Reference, with Sir Donald MacAlister, President of the General Medical Council, as chairman, to advise him as to the further steps which should be taken for the organization of the medical profession, with a view to meeting the needs both of the military and civil population.

The letter sets out certain subjects upon which the Conference will be asked to express an opinion. The first is the question whether the services to be given by members of the profession should be compulsory or voluntary. It will be remembered that as long ago as December 30th last the Central Medical War Committee informed the Prime Minister that it "approved the general principle of mobilization of the medical profession, apart from any question of the general mobilization of the whole community, so that any individual whose name is on the *Medical Register* shall give such service, whether in a military or a civil capacity, as he or she is competent to give, when required to do so by the State." On December 23rd the Scottish Medical Service Emergency Committee addressed a letter to the Prime Minister, transmitting a resolution expressing its approval "of the principle of the complete organization of the medical profession for the period of the war and for six months thereafter, in order that every person whose name is on the *Medical Register* shall be held bound, when required by the Government, to give such service as he or she is competent to render to the country for naval, for military, or for civil practice." The resolution had a rider to the effect that it had been adopted "on the understanding that the organization referred to shall be in the hands of a Medical Committee appointed by the Government for the purpose." The policy expressed in the resolutions of the two committees may be held to be identical, although the Scottish resolution would appear to have conveyed the idea that compulsion was necessary more clearly than the other. The Manchester Medical War Committee was very definite, for it expressed the opinion that any scheme for recruiting medical service at home would be impossible of success if based on a voluntary principle. The rider providing that the organization of mobilization should be in the hands of a medical committee was endorsed by the Royal Colleges in Edinburgh and in London.

The third subject to be discussed by the Conference is very nearly related to the first, for it has to do with the arrangements which should be made centrally and locally for redistribution of medical men; while the second concerns the arrangements that should be made for the collection and distribution of fees, or other form of remuneration, in cases where doctors leave their own practices or take on the practices of others.

The last subject mentioned is the relations which should exist between any central executive or advisory body representing the profession and the department of the Director-General of National Service. There is, we trust, good reason for the hope that the Conference will advise Mr. Chamberlain to rely on the national committees, with their machinery of local committees and their accumulated information as to the conditions prevailing in various parts of the country, to continue their work in any new circumstances that may arise.

The whole nation is at present being tested to see whether the voluntary system will succeed or whether it must be replaced by compulsion. The medical profession is being tested with the rest, but it has this advantage, that through the work of the Central Medical War Committee, the Committee of Reference, and the Scottish Medical Service Emergency Committee, it has already machinery in working order which could easily be adapted to the desired purpose. If, so far as the medical profession is concerned, compulsion comes, it will be due to the man who is unwilling to share risks with his neighbours. The nature of these risks has, perhaps, been misunderstood; too much attention has been concentrated on what must be a very rare event, namely, removal of an established medical practitioner from one part of the country to another. It seems clear that voluntary mobilization must involve willingness on the part of the younger men unfit for military service, especially those who have few ties and have contracted few obligations, to undertake civilian work in other localities. It would also, we take it, involve willingness on the part of some proportion of the men between 41 and 55 to do what younger men are compelled to do—namely, take service in the army. The Committees, we have no doubt, will be careful to ask such service from those only who can be spared without great detriment to their own present interests and those of the public in the localities in which they practise. Voluntary mobilization would also involve willingness shown by those who remained to undertake the practice of younger men in a different part of the same town. Under a voluntary system the uprooting of a man from his accustomed sphere and his transplantation into another area might be expected to occur only in very exceptional cases; under a compulsory scheme it is not easy to foretell what would happen, but Government officials might find transplantation an easy method of escaping from a difficulty.

WAR AND OTHER CAUSES OF INSANITY.

SIR THOMAS CLOUSTON accustomed the medical profession to look to the annual report of the Royal Edinburgh Mental Hospital at Morningside for something more than formal statistics—for something which would help it to estimate the general trend of facts and opinions as to mental disease. His successor, Dr. George M. Robertson, has continued the tradition, and in his report for 1916 tells us that the statistics at his disposal afford no evidence that there was any increase in insanity in the civil population last year, either as compared with 1915 or former years.

The number of males admitted to Morningside and its dependent institutions was much the same, though it had been expected that there would be a fall in their number owing to the withdrawal of so many young adults from the civil population. There is, however, reason to fear that the strain of modern warfare has resulted in much mental derangement among young soldiers, but as these cases are being treated in special military hospitals they have not begun to affect civil statistics; as they are mostly of a recoverable nature it may be hoped that they never will. There was a fall in the number of females admitted, and though several of the breakdowns were due to the strain and excitement of unaccustomed war work, yet so far its effect would seem to have been on the whole beneficial and less injurious than the semi-employed and shut-in lives that many women formerly led. The number of cases attributed to bereavements the result of the war was not as large as was expected, and Dr. Robertson suggests that the righteousness of our cause, and the nobility of character displayed by the youth of the country, have softened the blow, while the knowledge that the sacrifices have not been in vain has proved a consolation.

He has, however, a grave warning to give about spiritualism. It was mentioned among the causes of the mental breakdown in some of the cases admitted, and he adjures those who are seeking consolation in their sorrows by practical experiments in this domain to beware. While going so far as to say that spiritualism is a subject worthy of patient and unbiassed inquiry by competent investigators, he insists that those who are unversed in normal, and particularly in morbid psychology, are not competent investigators, least of all those who are wishing and longing for and unconsciously expecting certain manifestations from dead friends. He reminds inquirers into the subject that if they wish to meet those who are hearing messages from spirits every hour of the day, seeing angelic and human forms surrounding them, and receiving other similar manifestations, they need only go to a mental hospital to find them. The modern physician has come to regard such phenomena as symptoms of disease, and if honest mediums exist who hear inaudible messages, or feel communications without words, or see forms invisible to others, is inclined to look on their "gifts" as, if not actually morbid, at least closely related to the morbid, with no element of anything "occult" about them. Dr. Robertson strongly counsels those who may possibly inherit a latent tendency to nervous disorders to have nothing to do with practical inquiries of a spiritualistic nature, lest they should awaken a dormant proclivity to hallucinations within their brains. This point is extended by the statement that while inquiries into spiritualism sometimes lead to insanity in the predisposed, more frequently the fact is that for persons suffering from the simple forms and early stages of mental derangement the theory of spiritualism has a great fascination. It is a simple explanation—that given by the primitive savage for all the actions produced by the mysterious forces of nature. When, therefore, a person suffering from early symptoms of insanity hears imaginary voices or experiences strange feelings and impressions, this simple explanation offered by spiritualism affords a ready and comforting explanation; but, though spiritualism may be injurious to these persons in retarding recovery, it would be wrong to say that it was the cause of their derangement.

Dr. Robertson congratulates the military authorities on the resourceful way in which they have coped, in association with other official and voluntary bodies, with the serious problems connected with the care and treatment of the large number of neurasthenic soldiers. The public rightly desires that such men should have a good chance of recovery without undergoing the legal process of being certified to be insane, and there is no insuperable difficulty in a mentally deranged patient being kept under observation and treatment in a special hospital for six months, if the case be notified to the Board of Control and medical certificates showing the necessity of the step be issued. In Scotland a mental case can be kept at present for six months in any private house for gain without notification, and the question may well be asked why he should not equally be placed in a well-appointed mental hospital, specially designed and organized for the care of such cases, kept not for private gain, under the strict regulations of the Board of Control. The answer would seem to be, that even a short residence in a mental hospital, which is more commonly called a lunatic asylum, impresses on him a stigma not felt in the case of persons who have been inmates of hostels for neurasthenic patients, but Dr. Robertson asserts that the promoters of such hostels are doing a public disservice by speaking unfavourably of the useful and excellent work done in asylums; there ought to be no antagonism between such hostels and mental hospitals, for both are necessary for appropriate cases. He boldly asserts that whereas no case of neurasthenia has been sent to an asylum, the converse is not true, and that a man admitted to a hostel may find himself side by side with patients obviously suffering from mental disease.

In analysing the main cause assigned for the mental breakdown which led to the admission of patients to Morningside, or one of its dependent establishments, Dr. Robertson goes into some detail with regard to alcohol and venereal diseases. Alcohol was the direct exciting cause of insanity in 10.8 per cent. of the men admitted, and the disorder was of a curable type. Venereal disease was the definite cause of 14.7 per cent. of the cases of insanity occurring among men in 1916, and all of them were of incurable type; that is to say, one in every seven men admitted suffered from irrecoverable insanity, produced by a preventable cause and a disease very curable if the remedies medical science has discovered be used at an early stage. The return from the systematic treatment of syphilis now being organized by public bodies cannot be immediate so far as the prevention of this incurable form of insanity is concerned, for it does not develop as a rule till twelve years after infection, but in the end all outlays may be amply repaid.

No reference is made to insanity due to venereal disease among the women admitted, but it is stated that in 4.1 per cent. the exciting cause was alcohol. The statistics appear to indicate that there was slightly less drinking among men in 1916 and slightly more among women, but the figures compare favourably with the average annual percentages of the previous seven years. The number of cases of alcoholic insanity admitted has been decidedly less since the war began than in previous years, and there is no evidence in the statistics that women since then have been drinking more. Dr. Robertson admits that there may have been more obvious drunkenness, for, as he says, "a weekly or fortnightly drinking bout on pay day, however much to be reprobated from a moral or social point of view, is not so injurious to the nervous

system as steady drinking to physiological excess, even if this be never accompanied by any signs of intoxication." He recognizes that much requires to be done, and expresses the hope, which, he says, is that of every medical man, that the Government now that it has begun, will continue to deal with the use and abuse of alcohol boldly and on rational lines.

CHEMISTRY AND THE WAR.

THE Registrar of the Institute of Chemistry of Great Britain and Ireland prefaces an interesting account he has written of the work done by chemists in the war by observing that the Government has secured the guidance of chemists and other men of science to assist in the investigation of suggestions and inventions and to bring their knowledge and experience to bear on measures and devices of offence and defence. The country had come to rely so much on foreign sources of supply that means had to be found for dealing promptly and efficiently with the difficulties which arose so soon as importation was stopped by the war. The laboratories of universities and colleges quickly became small factories for the preparation of drugs and medicaments, and many were entrusted with the examination of materials used in the manufacture of explosives. Uniformity in method and the standardization of processes was secured, and students unfit for service with the colours were set to work under the supervision of their professors. Several hundred chemists were engaged to assist in the laboratories and in Government and controlled establishments supplying armaments, munitions, and other materials of war, and in some branches arrangements were made for probationary training. The staffs of the chemical department of Woolwich Arsenal, and of the Government laboratory responsible for the examination of foodstuffs and many other requirements of the Expeditionary Force, were enlarged. A number of chemists were early given commissions in the army for scientific work, and after the employment of poisonous gases by the enemy men with training in chemistry were enlisted for service in the field. With the assistance of the universities and technical colleges, and various bodies interested in chemistry, an entirely new force was brought into existence; the officers were mainly selected from chemists who already held commissions, whilst non-commissioned officers with knowledge of chemistry were transferred from other units. Both Lord French and Sir Douglas Haig had in their dispatches spoken highly of the work done by this force, which was obtained entirely by voluntary enlistment. The majority of the university graduates and men possessing recognized diplomas who originally enlisted as corporals subsequently received commissions, and when the force was more completely organized a considerable number were transferred to the Ministry of Munitions. During the campaign against the rebels in South Africa and the Germans in South-West Africa chemists were attached, by direction of General Botha, to the different brigades, and rendered valuable service. The experience gained in the campaign proves, the Registrar thinks, that it is advisable that the State should have control of an organization of professional chemists which would at any time ensure their efficient service to meet the many requirements of the naval, military, and air forces. Chemists were required to control the manufacture of munitions, explosives, metals, leather, rubber, oils, gases, food, and drugs; for the analysis of all such materials and for research; on active service chemists were required to assist in the control of water supplies, in the detection of poison in streams, in the analysis of water and food, and in the disposal of sewage, and both at home and on active service to assist in devising safeguards against enemy contrivances of a scientific nature, in devising methods of offence, and to instruct the troops in such matters. In summing up the matter, it is said that "chemists have met the situation with a spirit of true patriotism and have been promptly organized for the service required of them. It is not too much to hope that, as the discoveries of science have been applied to the destruction of humanity, they may be devoted more and more to the furtherance of the arts of peace, to the uplifting of civilization, and the pacification of the world."

"MANIPULATIVE SURGERY" AND MAN POWER.

FOR years we have heard the voice of one crying from Park Lane that the medical world is out of joint and that he has been born to set it right, aptly enough, by manipulative surgery. Mr. H. A. Barker has recently announced, that soon after the outbreak of war he offered through the proper authorities to relinquish his private practice in order to devote his time "entirely and gratuitously to those soldiers and would-be soldiers who might be helped in certain specific joint abnormalities which had not responded to orthodox treatment." He offered his help, he said, because he knew that such assistance would not be forthcoming from the R.A.M.C., and that to withhold it would mean that thousands of men who were susceptible of cure would be left unrelieved. He complains that this offer was rejected on the ground that he is not a registered practitioner. The claims of the practitioners of "manipulative surgery" are now, it would seem, to be advanced along with those of "osteopathy" a nebulous system of treatment for which its American originators have claimed wonderful results. The original intention of the champions of the bonesetters in the House of Commons was to obtain an official inquiry, but the osteopathic red herring would seem to have thrown them off that particular trail. Both sections have combined to form a committee or Commission to carry out an investigation on their own account. Two meetings have been held this week, and in addition to Mr. MacVeagh, who appears to be their leader, the members interested are understood to be Sir J. Agg-Gardner, Sir James Doherty, Sir George Greenwood, Sir J. D. Rees, Sir W. Byles, Sir Thos. Esmonde, Colonel Burn, Major Hunt, Mr. James Mason (Windsor), Lieutenant Gerald France, Mr. Cory, Mr. Bliss, Mr. R. Lambert, Mr. Anderson, Mr. Noel Buxton, Mr. George Thorne (S. Wolverhampton), Mr. Hugh Law, Mr. Joynson Hicks, Mr. Vaughan Davies, Commander Bellairs, Mr. J. J. Mooney, Mr. A. Bird, Mr. Whitty, Mr. Swift MacNeill, Mr. Pringle, and Mr. Peto. Mr. Pringle and Mr. Peto were elected honorary secretaries. We have no wish to hinder any fair inquiry, but with the recollection of similar investigations of cures for cancer and other loudly vaunted methods of treatment, we have no hope of any decisive result. For such an inquiry to be satisfactory, Mr. Barker and the osteopaths would have to make full disclosure of their failures as well as successes. The impartiality of an inquiry conducted by the group of members Mr. MacVeagh has gathered round him does not seem assured if we may judge from a letter published by him in the *Evening Standard* of February 17th. In it, while absolving Sir Alfred Keogh from any responsibility for what he calls a "scandal," Mr. MacVeagh places it on the shoulders of "a professional camarilla filled with insane jealousy of unqualified men who have beaten them in one branch of their own calling." What is this "camarilla"? Is it the General Medical Council? Mr. MacVeagh before rushing into the fray as a champion of the two experts in manipulative surgery who, according to him, "have 'made good,'" that is, as he explains, who "derive enormous fees and enormous incomes," and who "have treated men in the royal circle, generals in the army, admirals of the fleets, and hundreds of officers," should have learnt that the

Council, like the bench of judges, does not make but only administers the law. That law is contained in the Medical Acts, and, as Mr. Macpherson has pointed out, the War Office has no power to employ as a surgeon in military service any person not registered under those Acts. But why should Mr. MacVeagh's committee or commission confine itself to bonesetting and osteopathy? The cures sometimes wrought by Christian Science, too, are as unquestionable as those which can be claimed for manipulative surgery. The parliamentary advocates of manipulative surgery would do well to make themselves acquainted with what is being done for the army in respect of injuries of bones and joints. If they will, they can hardly fail to be convinced that Mr. Macpherson only spoke the simple truth when he said that we have not only the finest surgeons but the finest hospitals in which our soldiers are treated.

"STICKIT MINISTERS" OF MEDICINE.

THE "stickit minister" is a familiar character in Scottish life; Scott has drawn a classic specimen of the type in Dominie Sampson. Medicine, as well as divinity, has its "stickit ministers," men who, when putting forth on the incalculable sea of life, have seen their destination in the art of healing, but for one reason or another have changed their course. Of the great majority of these, the only record would be that their life was well spent if it be true that *Bene vixit qui bene latuit*, but some have writ their names large on the scroll of fame. The most illustrious example is Charles Darwin. The son of Robert Darwin, a well known physician of Shrewsbury, Charles was himself intended for the medical profession. He gives a charmingly naïve account of his father's view of the matter. Describing him as by far the best judge of character whom he ever knew, the son says his discerning parent declared that he would make a successful physician, meaning by this one who would get many patients. The elder Darwin maintained that the chief element of success was exciting confidence, but, says the son innocently, "what he saw in me which convinced him that I should create confidence I know not." The author of the *Origin of Species* studied medicine at Edinburgh for two years, but the discovery that he would have enough money to live on was sufficient to check any strenuous effort. Besides this, anatomy disgusted him, and the professor of the subject was deadly dull. He regularly attended the clinical wards in the hospital, and, though distressed by what he saw there, did not allow this to lessen his attendance. But he could not stand the operating theatre, and he fled to the less exciting classrooms of Cambridge. The loss to medicine from this desertion was the gain of science and doubtless of the world. But it would have been a misfortune for mankind if James Young Simpson had given up medicine in horror at the sufferings of patients under the knife. It is known that, after seeing an operation, he thought of taking up the law as a profession. Reflection, however, led him to the better course of determining to seek for some means of preventing the pain which caused him such distress, with the result known to all men. Sainte Beuve, the foremost literary critic of his day in France, got so far in his medical studies as to hold a hospital appointment under Dupuytren, a fact of which he was justly proud. The hero of his first novel was a medical student, unkindly described by Chateaubriand as a *Werther carabin*. Emile Littré was a student for ten years and was a hospital *interne*. The author of the great French dictionary was a man of vast learning in medicine as in philology and other departments of human knowledge, and among his works was the *Dictionnaire de médecine, de chirurgie, et de pharmacie*, which has gone through many editions. Léon Daudet, the son of a famous father, who has himself won a considerable name in literature, was a medical student for a number of years, but gave up the career in disgust at some real or fancied injustice of examiners. By way of revenge he produced a spiteful novel, *Les morticoles*, a satire on doctors, with the bitterness but without the wit or the power of imagination of Swift. Francis Thompson was the son of a doctor, and was a medical student at Manchester. He soon deserted medicine to follow the call of the muse, becoming one of the greatest of our nineteenth century poets. Among the original contributors to *Punch* who helped largely to build up its reputation were John Leech, Percival Leigh, and Albert Smith. Leech began life as a student of medicine at St. Bartholomew's Hospital. Percival Leigh, the author of *Pips his Diary*, was a qualified man, but did not practise; his early association with medicine earned for him the nickname of "professor" among his colleagues. Albert Smith passed the "College and Hall" but soon shook the dust of the surgery off his feet. His experiences of the profession were embodied in *The Physiology of the London Medical Student*, and *The Adventures of Mr. Ledbury*. Lessing, the German critic and dramatist, studied medicine at the University of Leipzig, but soon gave it up for literature. A. P. Tchehoff, the Russian writer of whom Tolstoi said he was one of the few whose novels are read with pleasure more than once, was a medical student at the University of Moscow. He says, "I did not know much about faculties at that time and I don't well remember why I chose the medical faculty; but I never regretted that choice later on." He did not graduate, but clinical work in a Moscow hospital and also during the cholera epidemics of 1892 brought him in contact with all sorts and conditions of men and women, and he says his scientific training was of great use to him in his literary work. A remarkable man who was driven from the profession by combined stress of politics and theology was George Hay, who kept alive the flame of Catholicism which had almost flickered out in Scotland in the eighteenth century. He was apprenticed to a surgeon in Edinburgh when the rising of 1745 took place. He "went out" with his master and worked among the sick and wounded of Prince Charles's army till he was invalided. On his release from prison he returned to his medical studies and worked under John Rutherford in the Edinburgh Royal Infirmary. He was a member of the Medical Society, but was prevented by the penal laws from graduating. After serving a short time as a ship's surgeon he went to Rome and became a priest, and ultimately a bishop. His numerous writings on controversial, devotional, and other subjects have passed through innumerable editions and have been translated into several languages.

DELAYED TUBERCULOUS INFECTION.

As a contribution to the jubilee of the late Professor Metchnikoff, of the Pasteur Institute at Paris, Professor Delépine, Director of the Public Health Laboratory, University of Manchester, sent an interesting paper,[1] throwing light on the genesis of latent or delayed forms of tuberculous infection in some instances. He argues that tubercle bacilli of various strains or degrees of virulence are so commonly encountered in daily life that every one of us must be exposed frequently to the danger of infection thereby, and points out that this argument has been used to prove the view that the resisting power of the individual is the main factor determining whether infection takes place or no. This paradox, he holds, takes insufficient account of the normal variability in the pathogenic powers of any given sample of the tubercle bacillus. To prove the correctness of his own view, he quotes certain experiments he has made on guinea-pigs. These experiments consisted in the inoculation of the animals with human tubercle bacilli of normal virulence, but first heated in the course of a few minutes to 78° C. or 92° C. in order to reduce their pathogenicity. Experiment showed that

[1] *Annales de l'Institut Pasteur*, Paris, 1916, xxx, 600.

these heated tubercle bacilli produced but slight local lesions at the end of eleven weeks, whereas before being heated they gave rise to local ulceration in a fortnight. But further observation of the guinea-pigs inoculated with the heated bacilli proved that these microbes recovered their normal pathogenicity when conveyed—no doubt by the phagocytes—to distant parts of the experimental animals' bodies. The recuperation of the pathogenic power became more marked as the distance from the seat of inoculation increased; for, while the local lesions remained insignificant, those of distant organs became practically as extensive as those found in the animals inoculated with the unheated tuberculous milk. The period of latency in these experiments amounted to three or four weeks, and Professor Delépine argues that it throws light on a most important aspect of the processes of infection that has, perhaps, been neglected in the past. He also quotes experiments to show that tubercle bacilli can retain some of their pathogenicity for as long as 500 days if kept in the dark in milk at a low temperature—below 6° C. But after being kept thus for four and a half years these bacilli were no longer pathogenic to guinea-pigs.

A GALLANT ACT REWARDED.

ON September 7th, 1916, an accident, which might easily have ended fatally, occurred at the ladies' bathing place of San Stefano Hotel, near Alexandria. Two Egyptian ladies, who were not good swimmers, had the temerity to venture out of the large bath into the open sea. They rapidly became exhausted, and found, to their horror, that the current was carrying them further and further from the bath. There were many ladies, of many nationalities, bathing at the time, and some of these screamed loudly for assistance. Before other help could come, Mrs. Alfred Tubby, who is a good swimmer and was fortunately in the sea not far away, swam to the rescue of the two ladies, brought in one of them and returned without delay for the second, who was already in a collapsed condition. Brigadier-General Boyle, C.B., heard this story, obtained documentary evidence from two English eyewitnesses, and forwarded it to the Royal Humane Society for its consideration. After due inquiry had been made, the bronze medal and certificate of the Society reached the General. At a private dinner given by Dr. Granville, C.M.G., to celebrate the occasion, at the Sultan Hussein Club, Mrs. Tubby, to her surprise and delight, received the honour at the hands of the General Officer in Command. General Boyle remarked that it could seldom have happened that the mother of a grown-up daughter had received this coveted reward for saving life from drowning. He referred also in complimentary terms to the valuable services rendered to troops in the Mediterranean by Colonel A. H. Tubby, C.M.G., consulting surgeon.

THE following are among the fifteen candidates selected by the Council of the Royal Society to be recommended for election into the society: Dr. H. D. Dakin, Director of the Herter Laboratory, New York; Professor J. S. Macdonald, Holt Professor of Physiology, University of Liverpool; and Professor S. G. Shattock, F.R.C.S., Pathological Curator to the Royal College of Surgeons of England.

THE city of Paris has adopted the rather doubtful policy of erecting in the gardens of its hospitals huts for men discharged from the army suffering from tuberculosis. Some 660 beds have already been provided in this way, and huts for 1,500 more are being put up as fast as the scarcity of labour permits. A sum of £200,000 has been voted for construction, and the expense of maintenance is estimated at £120,000 a year.

Medical Notes in Parliament.

THE arrangements of business in the House of Commons during the present week were considerably changed from the announced intentions. It had been expected that the Criminal Law Amendment Bill would be taken in Committee on February 27th, but, as noted below, the measure was referred to Grand Committee. It had also been intended that a debate should take place on that day on the revised Pensions Scheme, but the drafts giving particulars could not be issued until Wednesday morning, and the discussion was therefore postponed. Mr. Bonar Law's gratifying announcement that the subscription of new money to the War Loan amounted to a total of £1,000,312,950 was naturally received with immense satisfaction, so also was his announcement that the British Forces in Mesopotamia had occupied Kut. This was supplemented by information given by Lord Curzon in the Lords as to the character of the operations resulting in the capture of 12,000 of the enemy forces.

The Criminal Law Amendment Bill.—A short debate took place in the House of Commons on February 27th on the motion of the Home Secretary to discharge the order whereby the Criminal Law Amendment Bill was to have been referred to Committee of the whole House of Commons, and proposing instead that it should be referred to Grand Committee. Mr. Dillon thought it was "a cowardly thing" to send this measure to Grand Committee on the ground that the subject was not a pleasant one to discuss, and Sir Frederick Banbury urged that it was too important to be thus referred. Mr. Bonar Law, who earlier in the week had intimated that one advantage of the change would be that this bill and one to be introduced in the Lords by Lord Rhondda in regard to quack doctors would in due course come before the same Committee, held his ground, and a division gave 144 votes for the reference and 91 against.

Use of Cocaine by Unregistered Dentists.—In reply to questions by Mr. Raffan and Mr. Denniss, the Home Secretary stated on February 26th that the report of the committee to consider the question of authorizations for the use of cocaine by unregistered practitioners in dentistry had been received, and would be made available shortly. It raised some questions which required consideration, and it was therefore proposed to extend the general permit to unregistered practitioners in dentistry to use a solution of not more than 1 per cent. of cocaine for two months.

The Export of Morphine.—In reply to Sir William Collins, in the House of Commons on Monday, Mr. Balfour said that the quantities and value of morphine and morphine salts of British manufacture recorded as exported to Japan (including Formosa and Japanese leased territories in China) amounted to 252,110 ounces, valued at £118,794, in 1913; 352,130 ounces, valued at £143,975, in 1914; and 204,742 ounces, valued at £136,059, in 1915. These figures did not include exports by parcel post, respecting which no figures are available. The eventual destination of this morphine and the uses to which it was ultimately put were questions which concerned the Japanese administration, and were outside the competence of His Majesty's Government, which was of opinion that it would not be desirable to put the Opium Convention into force pending the deposit of ratifications by all the Signatory Powers. Sir William Collins asked whether this was not evidence that much of this morphine found its way into China in substitution for opium. Mr. Balfour replied that he had no information on this point.

Pharmaceutical Chemist with Colonial Diplomas.—In answer to Sir William Collins, the Home Secretary said that by-laws made by the council of the Pharmaceutical Society and approved provided for the registration under certain conditions of holders of Colonial certificates. No by-law had down to the present time been made by the council of the Pharmaceutical Society in respect to military dispensers or certified assistants to pothecaries, although it had been strongly urged by the Privy Council to give effect to the intentions of Parliament in the matter. Without further legislation there did not appear to be any action which the Government could take in the matter.

Asylum Dietary Scale.—In reply to Mr. Fell, who asked whether steps were being taken to bring the dietary scale in asylums to that enjoined for the public by the Food Controller, the Home Secretary said that the scales of diet in asylums were under the control of the local authorities. The Board of Control was in communication with the local authorities, and found them anxious to do their utmost to conform to the Food Controller's standards. Similar action was being taken in the case of other institutions connected with the department.

The Value of the Front Bench.—Mr. Arthur Lynch, M.P., writes: In your "Notes in Parliament" (p. 274) you have ascribed to me the quality of humour, to which I have never laid claim, and at the same time you have inadvertently done me a little injustice. Amid the fusillade of questions on "manipulative surgery," my intervention was in favour of the profession of which I am an honest, if poor, representative. I said: "As this question involves more technical considerations than my hon. friend (Mr. J. MacVeagh) seems to suppose, would it not be better to arrange a debate when the pros and cons might be heard?" It was Mr. MacVeagh who suggested that the life of one private soldier was more valuable than that of the whole Front Bench, but though I laughed with the rest of the House I must not be taken as endorsing unreservedly the proposition of my humorous friend. His method of disposing of the Front Bench is too drastic in its simplicity; I could have employed an adjuvant, a corrective, and especially a vehicle.

War.

Venereal Disease in the Army.—In a written answer to Mr. King on February 27th, the Under Secretary of State for War said that the present admission ratio for venereal disease for troops in the United Kingdom is 43.5 per 1,000 per annum. This was a reduction on that furnished on November 16th. In France the proportion is 24 per 1,000. In reply to a further question Mr. Macpherson said he had no information about the Allied or German armies. It may be noted that on November 16th Mr. Forster said that the admission rate to hospitals at home from the cause in question was 48.0 cases per 1,000 men per annum, which was slightly less than the ratio in peace time. No figures were then available as to the troops abroad.

Naval and Military Pensions and Grants.—Drafts of a Royal Warrant and of an Order in Council for the pensions of soldiers and sailors disabled, and of the families and dependants of soldiers and sailors deceased in consequence of the present war, were presented to Parliament on February 26th (Cd. 8485, price 3d. net). The draft warrant applies to soldiers, and the draft Order in Council to seamen and marines. Appended to the drafts are an explanatory note and an actuarial report by Sir Alfred W. Watson, chief actuary to the National Insurance Joint Committee. Subject to certain qualifications regarding liabilities which cannot be estimated, the actuary finds that the maximum annual charge to arise in the financial year 1918–1919 (or in the year next following if the war should be prolonged) will be £25,000,000; namely, to disabled men £14,100,000, to widows and orphans £8,200,000, to other dependants £2,700,000. He estimates that in the year next succeeding that of maximum liability the charge will amount to £23,000,000—namely, to disabled men £12,600,000, to widows and orphans £8,400,000, to other dependants £2,000,000. The Warrant and Order in Council do not apply to officers other than warrant officers and non-commissioned officers. In reply to Commander Wedgwood, Mr. Forster said that an announcement in regard to the question of separation allowances to the wives of junior officers during the war would be made very shortly.

Disabled Soldiers.—A series of questions addressed by Mr. Pennyfather to the Financial Secretary for War on February 27th brought from Mr. Forster the admission that some men suffering from disabilities due to or aggravated by service had been passed in error to Class W Reserve. The whole subject, however, was receiving immediate attention, and he hoped to be able to make an announcement shortly.

Medical Attendance on Officers' Families.—Colonel Yate inquired whether the War Office would consider the question of altering Paragraph 483 of the Regulations for the Army Medical Service so as to admit of the wives and families of officers resident at a station within the prescribed radius receiving medical attendance and medicines during the temporary absence of their husbands on duty elsewhere. Mr. Forster replied that medical attendance on families was a privilege and not a right. If the absence of an officer from his station was temporary and for a short period, attendance on his family was continued.

Visits to Military Hospitals.—On February 26th Mr. Forster promised Sir William Pearce he would consider whether concession tickets could be granted to relatives of sick and wounded soldiers at a distance of under thirty miles from the hospital at which a patient was under treatment.

The Training of Disabled Soldiers.—In a couple of questions addressed to the Minister of Pensions and the Under Secretary for War, Mr. Cory suggested that disabled soldiers in the Metropolitan War Hospital at Whitchurch, Cardiff, might be given facilities to use the workshops, kitchen gardens, and model farm there available, the suggestion being that this might be arranged through the Cardiff War Pensions Local Committee in conjunction with the Cardiff Technical Education Committee, who might provide the teachers. Mr. Forster (the Financial Secretary of the War Office) said, in reply, that he was in communication with the Minister of Pensions as to how the facilities afforded at this establishment might best be utilized to the advantage of disabled men.

Medically Unfit Soldiers.—Mr. MacCallum Scott asked Mr. Macpherson whether he was aware that the order of July 13th directing that attested men rejected as medically unfit upon re-examination should be given a certificate of discharge had been consistently disobeyed by the military authorities. Mr. Macpherson replied he was not aware that the War Office instructions were consistently disobeyed by the military authorities, but said that if Mr. Scott gave him particulars of the letter said to have been written by the Secretary of the War Office the matter would be investigated. Mr. Macpherson added that if Mr. Scott would give him specific cases he would certainly make inquiry. He was not aware whether it was true—as Mr. Pringle suggested—that men had been refused employment by employers because they could not produce their certificates of discharge. He was very sorry if that was so.

Manipulative Treatment.—In the Commons, on February 27th, Mr. Yeo asked what objection the Army Medical Department advanced to allowing Mr. Barker and other experts in manipulative treatment to assist and co-operate with the army surgeons in alleviating the sufferings of the wounded; whether he was aware of the extent of Mr. Barker's practice, and whether in view of the amount of support extended to him by members of the medical profession itself, he would dissociate the Army Medical Department from the attitude of the Council of the British Medical Association. Mr. Richard Lambert asked if the objection of the Army Medical Department was that Mr. Barker did not hold professional degrees; and, if so, whether Mr. Forster could state what was the objection to utilizing the help of doctors of osteopathy who held professional degrees. Mr. Macpherson replied he had no information as to the extent of Mr. Barker's practice. Independently of the attitude of the British Medical Association, the Army Council was, apart from other reasons, precluded by the terms of the Medical Act from utilizing the services of this gentleman. The British Medical Association had no official connexion with the War Office.

Mr. Pringle inquired whether the Government could not over-ride that Act by using the Regulations under the Defence of the Realm Act as it had in regard to so many other matters. Mr. MacVeagh asked what clause of the Medical Act prevented use being made of the services of these men, and Mr. Macpherson referred to Clause 36.

Mr. MacVeagh asked whether the Army Medical Department was yet in a position to say whether the British Medical Committee (Balneological Section) had reported on the use of manipulative treatment in France; and whether the Army Medical Department in our country proposed also to make use of every possible aid for wounded soldiers. Mr. Macpherson replied that the Committee had reported on certain methods of treatment all of which are in use in this country, and in reply to a further question by Mr. MacVeagh added that the Army Medical Department had sufficient assistance at present.

Replying to Sir Thomas Esmonde, Mr. Macpherson said the War Office had not received any report from General Count Gleichen on manipulative treatment, but he believed that an informal letter on the subject—of which there was no trace—had been written by Count Gleichen.

Mr. MacVeagh asked whether the Army Medical Department were aware that the Medical Act of 1858 applies only to persons falsely styling themselves physicians, doctors of medicine or surgery, or surgeons; whether the department is also aware that experts in manipulative treatment do not come within any of those descriptions, do not so style themselves, and have never asked to be so employed; and whether he can state what section of the Act can under those circumstances be construed as preventing the department from using the services of these experts. Mr. Macpherson replied: "No, Sir. I am not aware that my hon. friend's interpretation of the Medical Act is correct. I think if he refers to the Act he will find that it prohibits the appointment of any person as a medical officer unless he is registered. Every branch of medicine and surgery pursued by lawfully qualified medical men is represented among those employed by us."

On February 28th Mr. Noel Buxton asked Mr. Macpherson whether "In reference to the fact that manipulative treatment is in full swing in the army under well-known authorities on the subject, he will give the names of such authorities and state the source of their qualification in manipulative treatment." Mr. Buxton further asked whether the War Office would recommend a substantial increase in the number of manipulators available by employing others who had been specially trained and had passed qualifying examinations on the subject and who offered their services. Sir George Greenwood in a similar argumentative question asked whether the War Office had received the offer for services of 100 Canadian and American experts in manipulative treatment; whether he was aware that these gentlemen held the highest American qualifications in osteopathy.

Mr. Macpherson replied: Surgeons who have paid special attention to orthopaedic surgery are well acquainted with manipulative methods, and have them in constant use. Offers have, I believe, been received from time to time from America and elsewhere from osteopaths, faith healers, Christian Scientists, and others, but they have been refused on grounds I have now frequently stated to the House.

Mr. MacVeagh and others put several supplementary questions, and ground already covered was again gone over, until the Speaker humorously said, "We will resume this debate to-morrow."

THE WAR.

CLOSURE OF CRANIAL DEFECTS.

DR. R. PFLUGRADT, in dealing with cranial defects following gunshot injury,[1] referred to the earlier practice of endeavouring to close the defect by means of reimplantation of bone fragments. There were the same objections to this as a primary measure as to primary closure of the wound; the danger of primary infection in gunshot wounds, especially in tangential and segmental wounds, was now fully recognized. Moreover, as a preventive of prolapse of the brain the measure was probably useless, for it was now generally agreed that prolapse was due, not to the presence of the aperture, but to inflammatory swelling of the brain substance. Hence Pflugradt concluded that the closure of cranial defects after gunshot injury should only be undertaken secondarily.

As regards the desirability of operation and the length of time that should be allowed to elapse after the healing of the wound, there were differences of opinion. Many surgeons felt a disinclination to touch the healed wound at all; others would defer the plastic operation for a year after complete healing; others for six months. The indication for such an operation should be distinct, and the dangers weighed against the advantages offered.

Spontaneous closure of even small defects beneath a healed wound did not occur, and there would therefore almost certainly be adhesion of the brain wound to the scar in the soft parts. In such a condition the brain was liable to direct injury, and the patient was subject to congestion, headaches and giddiness resulting from variations in intracranial pressure. There was also the danger of secondary traumatic epilepsy. On the other hand, the dangers of the operation were slight. Injury of the brain or of a large vessel were avoidable accidents, and the danger from local anaesthesia was *nil*. As regards infection, no operation should be undertaken unless the wound were absolutely healed. Prolonged observation was necessary to exclude the presence of deep latent foci, especially when the healing of the wound had been delayed by suppuration. Observation extending over two to three months after healing and the subsidence of all symptoms was usually sufficient. Latent foci might persist longer than this, but their presence would merely necessitate a delay in performing the plastic operation. Pflugradt therefore considers the danger from infection to be avoidable.

The technical difficulties of the operation were usually not great. They were so only when the basis cranii was involved, and Pflugradt did not operate on such cases unless the sufferings of the patient were severe. The flap method was preferred to free transplantation, though the latter was justified by the results obtained. The addition of a second operation necessitated for the removal of a portion of tibia, scapula or other bone, could not but be regarded as a disadvantage. Of the flap methods for closing defects before the wound was completely healed, that in which the flap consisted of skin, aponeurosis, periosteum, and bone had an advantage over others. It had, however, certain disadvantages: it was unsuitable when several defects were present or when the surrounding bone was very thin, and with the thick layer of soft parts covering the bone the manipulations with the chisel were not under the control of the eye. These disadvantages were not present with a flap composed of periosteum and bone only; but the stalk in these was very thin, and Pflugradt's practice was to form the flap from aponeurosis, periosteum, and bone, with a view to securing better nourishment through the bridge of tissue. The subcutaneous and subaponeurotic flap methods he therefore regarded as the operations of choice, their advantages being the avoidance of disfiguring scars, their technical simplicity, the certainty of primary bony healing, the limitation of the operation to the injured region, and the almost unlimited applicability of the methods.

Local anaesthesia was induced by subcutaneous or subaponeurotic injections of a solution of novocain-adrenalin (0.5 to 1 per cent.). The scar on the skin was then either excised or cut round. Irregularities in the scar over the aperture were next smoothed down with the scalpel, care being taken not to open the subdural space; the dura was separated with a raspatory for about 1 cm. around the edge of the defect. A certain amount of bleeding always occurred between the bone and the dura, but this was readily arrested, even in the neighbourhood of the large sinuses. Cicatricial deposits were next sliced off with the knife, so that a thin fibrous layer remained as a substitute for dura over the defect. Next, the bony edge of the defect was freshened. For this purpose Pflugradt preferred to use a concave or flat chisel instead of bone scissors, as a smoother and more even edge with a projecting border of the inner table to support the bone flap was thus obtained. In forming the flap it was necessary to take care that the soft parts of the flap were wider than the defect, and the pedicle should be chosen so that no kinking or stretching occurred on sliding the flap into position. For cutting the bone flap Pflugradt used a straight, flat chisel with as broad a blade as possible. With this, by short tangentially directed blows, a bony plate of the size of the defect to be covered, and consisting of tabula externa only, was cut out. The plate of bone almost invariably broke across in several places, but this was an advantage rather than otherwise, enabling the flap to be more readily modelled with the finger to the normal curve of the cranium. It was important that the edges of the bone flap should lie in contact with the freshened edges of the defect; the existence of any interval between them would result in the union of the periosteum and dura over the edge of the defect and consequent cessation of the bone formation by which the defect was ultimately closed. Pflugradt never observed any indications of cerebral concussion from the blows of the hammer, but he recommended that a wooden mallet should be used, and that the blows should be counteracted by supporting the head with the left hand. After gliding the flap into position sutures were passed through the aponeurosis-periosteal layer, and finally through the edges of the skin incision. Pflugradt obtained closure of the defect and uninterrupted healing in all cases treated in this way. The size of the defects varied from 2 to 7 cm., the larger defects being closed by taking a periosteum-bone flap from opposite sides of the defect and suturing them in the middle of the aperture.

Jacksonian epilepsy was not present in any of his cases; he therefore did not excise the scars in the dura or brain, but simply pared them down.

[1] *Kriegschir.*, Heft 28. p. 465. *Beitr. z. klin. Chir.*

EXCISION OF WOUNDS.

DR. FRITZ KROH, Stabsarzt in a Feldlazarett, writing[1] on the treatment of primarily contaminated gunshot wounds, expressed surprise that the matter should still be considered open to discussion, considering the uniformly successful results of radical treatment in such cases. By radical treatment he meant the primary excision of all wounded tissues, leaving a new wound surface constituted of healthy tissues, and he held that the use of any other method in grenade wounds and mine wounds was not in the best interest of the wounded. Dr. Kroh's practice was to excise widely those wounds which were superficial, and, in the case of deep wounds, to resect all wound edges—skin, fasciae, and muscles. Through extensive skin incisions and the opening up of intramuscular areas all necrotic or doubtful tissues were removed, together with clots and foreign bodies, and new and clean conditions of wound surface and efficient drainage were established. This method, which he adopted early in the war, and applied irrespective of the presence of local or general infection, and, at times, as late as forty-eight or more hours after wounding, proved pre-eminently successful; in no case had he an unfavourable result; they all healed.

The following may be taken as an example: A grenade wound received fifty-two hours previously had been treated on conservative lines. The patient had general septic symptoms, and the whole wound, which was of the size of the fist, contaminated with dirt and fragments of clothing, and sloughing, was extirpated like a tumour, together with a superficial layer of the sacrum. The general condition rapidly improved, and in four weeks the wound cavity had filled up with healthy granulation tissue with a good spreading border of epithelium.

[1] *Kriegschir.*, Heft 28, p. 592, *Beitr. z. klin. Chir.*

Dr. Kroh regarded the method, supplemented with the use of hydrogen peroxide, as the best prophylactic measure against gas gangrene, not a single case having occurred in his station. In his view intramuscular areas, which afford favourable paths for the extension of anaërobic infection, required especial attention. On three occasions he found, at a distance from the wound surface, light green gelatinous translucent masses in these areas. The significance of these masses was unknown at first, but they were recognized as the lesion of malignant oedema; they might occur alone or associated with gas gangrene. In a case of bullet wound of the leg the limb was amputated after four days of suppuration with gelatinous infiltration. A pure culture of *B. oedematis maligni* was obtained. For four days the general condition was good; after this signs of general sepsis appeared. On opening up the flaps the upper recess was found to be filled with gelatinous exudate which could be traced upwards into the thigh, which was incised for about 20 cm. The patella and surrounding synovial membrane was excised, together with the gelatinous infiltration in the thigh. Subsequent incisions in the thigh and flank showed oedematous swelling only. Healing was normal.

Dr. Kroh would not extend the radical treatment to bullet wounds; he pointed out, however, that they were at times the source of dangerous infection, and should in all cases be kept under strict observation and receive that treatment at the first sign of fever or increased frequency of the pulse.

As regards technique, all diseased tissues—skin, fascia, muscle, tendon, bone—were extirpated, the soft parts with the knife or scissors, the bone with concave chisel or forceps. Only unwounded nerves and large vessels were spared; if wounded, the ends of the vessels were resected and ligatured, the nerve stumps resected, and in some cases united. A drainage channel was provided of sufficient width to prevent the drainage tube obstructing the free outflow of exudate. In wounds with retention of the projectile Dr. Kroh extirpated the canal, and either converted the wound into a trough by splitting up skin and muscle, so that the whole was readily under control, draining above and below; or he made a flap through the canal if not too deep; or, in deep wounds, after excising the canal as far as possible, he worked through sound tissue to the lower end of the wound and drained from there. Treated in this way, 99 per cent. of his cases needed no further operation; phlegmon was unknown and suppurating sinuses never remained. Joint wounds were dealt with by excising the track, including the perforated portion of the capsule of the joint. Wounds in the hard structures were chiselled out, fragments removed, and the whole joint cavity treated with iodine and drained through the wound in the capsule. Functional results in cases so treated were not unsatisfactory, even when the joint cavity had been long kept open.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN J. A. HARPER, R.A.M.C.

Captain John Alexander Harper, R.A.M.C., was killed in action in France on February 14th. He was the second son of Alexander R. Harper, J.P., of Govan, and was educated at Hillhead High School, Glasgow, and at Glasgow University, where he graduated M.A. in 1908 and M.B., Ch.B. in 1912. After acting as resident physician in Professor Stockman's wards in the Western Infirmary, Glasgow, and as house-surgeon of the Glasgow Maternity Hospital, he took a temporary commission in the R.A.M.C. in December, 1915, and was promoted to captain on completion of a year's service. He received the Military Cross on March 30th, 1916, for bravery in action at Ypres. He was attached to the Yorkshire Regiment when killed.

DR. L. F. HANBURY.

Dr. Langton Fuller Hanbury, medical superintendent of the West Ham Borough Asylum, Goodmayes, Essex, who joined the army on November 1st, 1914, as a private in the Sportsmen's Battalion of the Royal Fusiliers, was reported missing in July, 1916, after a heavy engagement in Delville Woods in France, and is now officially reported dead. He received his medical education at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902. He was a member of the Medico-Psychological Association.

TEMPORARY LIEUTENANT C. STIEBEL, I.M.S.

Temporary Lieutenant Charles Stiebel, Indian Medical Service, was killed on February 2nd, aged 40. He was the son of the late D. C. Stiebel, of London, was educated at Clifton, at St. Thomas's Hospital, and at Trinity College, Cambridge, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902, the M.B.Camb. in 1904, and the F.R.C.S.Edin. in 1911. After acting as house-surgeon in the West London Hospital, he went to South Africa and practised at Bloemfontein, then returning to England, served as assistant medical officer of the Bradford Infirmary, and as first assistant medical officer of the Marylebone Infirmary. In 1912 he went to India as a medical missionary of the Salvation Army, and held charge of their hospitals, first at Nagercoil in South India, and afterwards at Anand, in Guzrat. He took a temporary commission as lieutenant in the I.M.S. on November 17th, 1914, and served successively in the Kitchener Hospital at Brighton, at Alexandria, at Mudros, and in Mesopotamia. In 1912 he married Miss Agatha Cook, night sister at the Marylebone Infirmary, and leaves a widow and two daughters.

Died of Wounds.

CAPTAIN E. W. S. MARTIN, R.A.M.C.

Captain Edwin William Sidney Martin, R.A.M.C., is reported to have died of wounds recently in the East, aged 41. He was the son of Mr. J. E. Martin, J.P., of Tramore, Ireland, was educated at Queen's College, Belfast, and took the M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1899, and also the D.P.H. at Cambridge in 1905. Before the war he was in practice at Brithdyr, Tredegar, Glamorgan, and was medical officer to the Bedwellty Urban District Council. He took a temporary commission as lieutenant in the R.A.M.C. on April 5th, 1915, and was promoted to captain on completion of a year's service. He had served at Malta, and in Gallipoli, and was present at the evacuation of Suvla Bay. He was attached to the Worcestershire Regiment.

Wounded.

Captain W. M. Badenoch, R.A.M.C. (temporary).
Captain F. E. Chapman, R.A.M.C. (temporary).
Captain J. H. Cuthbert, R.A.M.C. (temporary).
Lieutenant J. M. Hammond, R.A.M.C. (temporary).
Lieutenant W. J. Pearson, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cardew, John St. Erme, Lieutenant R.N. (retired), younger son of Mr. Arthur Cardew of Cheltenham, died at Cheltenham on February 9th, aged 25, of illness contracted on service in the North Sea. While in H.M.S. *Lizard* he took part in the naval action in the Bight of Heligoland, and in the bombardment of Ostend. In July, 1915, he was promoted to lieutenant, and appointed to H.M.S. *Canada*. He was taken ill in the following September, and invalided out of the service in July, 1916.

Ford, John Ballard Berkeley, Captain Royal West Kent Regiment, only child of Surgeon-General Sir Richard Ford, A.M.S., died of wounds on February 16th, aged 29. He was educated at Wellington, entered the army from Sandhurst in 1908, and became captain on April 19th, 1915. During the early part of the war he had served in Mesopotamia, and latterly on another front.

Fraser, James Lovat Hosack, Lieutenant Machine Gun Corps, formerly of the Cameron Highlanders, eldest son of Dr. J. Hosack Fraser of Bridge of Allan, died of wounds received on February 18th, aged 24.

Simpson, Frank W. H., Captain Royal Garrison Artillery, attached to Royal Flying Corps, son of Professor W. J. Simpson of London, killed February 16th, aged 25. He was educated at Winton House, Winchester, at Cheltenham College, and at the Royal Military Academy, Woolwich; joined the army in 1911, became lieutenant on July 20th, 1914, and had recently been promoted to captain. He joined the Flying Corps eighteen months ago.

Townsend, A. Eric, Lieutenant Durham Light Infantry and Royal Flying Corps, second and last surviving son of Dr. Townsend, of Normanby, killed on February 15th, aged 21. He was educated at Haileybury, and on leaving school joined the Cargo Fleet Iron Company. When war broke out he joined the East Riding Yeomanry, received a commission in the Durham Light Infantry in November, 1914, and six months later was invalided for rheumatism. He then rejoined the Cargo Fleet Iron Company, but after a year, having recovered, again got a commission in the Durham Light Infantry, and a month later was transferred to the Royal Flying Corps. He went to the front on January 17th. Dr. Townsend's eldest son, Lieutenant F. E. S. Townsend, was killed in France last September (BRITISH MEDICAL JOURNAL, October 14th, 1916).

MEDICAL STUDENT.

Humphreys, Arthur Idwal, Lieutenant Royal Naval Volunteer Reserve and Royal Naval Division, second son of the Rev. W. E. Humphreys, head master of Nelson School, Wigton, Cumberland, was killed by a shell on February 5th, while attending a wounded soldier. He was a medical student at Durham and Edinburgh Universities, enlisted in the Scottish Horse at the beginning of the war, got a commission in the R.N.D. in October, 1914, and became lieutenant in April, 1915. He had served in the Dardanelles and in France.

NOTES.

THE head quarters of the Army Medical Service have been transferred to Adastral House, a large building on the Victoria Embankment, near Blackfriars Bridge.

A long list of names brought to the notice of the Secretary of State for War for valuable services in connexion with the war has been issued, and we propose to print the names of the medical officers mentioned in our next issue.

CANADIAN ARMY MEDICAL CORPS.

Colonel G. la F. Foster, C.B., Deputy Director of Medical Services, C.A.M.C., has been appointed to be Director of Medical Services, C.A.M.C., with the temporary rank of Surgeon-General, vice Surgeon-General G. C. Jones, C.M.C.

RED CROSS DECORATIONS FOR NURSES.

The King has awarded the Royal Red Cross decoration of the first and second classes to a large number of matrons, sisters, and nurses for valuable services in connexion with the war.

SANITARY CONFERENCE.

A conference of sanitary representatives of the allied nations took place in Paris last week. It was opened by M. Godart, sanitary under-secretary of the War Office, and was presided over by the Italian senator Santo-Liquido. It was attended by representatives of Belgium, France, Great Britain, India, Italy, Japan, Portugal, Russia, and Serbia.

PENSIONS FOR LOSS OF LIMBS.

An Order in Council has been issued making certain additional regulations to have effect until the issue of other regulations by the Ministry of Pensions to seamen and marines discharged on account of disability. The regulations with regard to loss of limbs are as follows:

1. *Leg Amputations.*

	Weekly Pension.
(*a*) At hip	16s. 0d.
(*b*) Short thigh with pelvis band	14s. 0d.
(*c*) Above knee (other than *b*) and through knee	12s. 6d.
(*d*) Below knee including Syme's amputation and Chopart's amputation	10s. 6d.

2. *Arm Amputations.*

	Right.	Left.
(*a*) At shoulder-joint	16s. 0d	15s. 0d.
(*b*) Above or through elbow	14s. 0d.	13s. 0d.
(*c*) Below elbow	11s. 6d.	10s. 6d.

Men who have lost the *use* of a limb shall be granted pensions of not less than 10s. 6d. a week—that is, the minimum rate allowable for loss of limb.

The draft Royal Warrant for the pensions of disabled soldiers and their families and dependants (see p. 306), which does not apply to officers, contains a schedule setting out the pensions for specific injuries. In respect of amputations, it is based not upon the specific operation performed, but upon its site. The maximum pension is given for the loss of two or more limbs; 80 per cent. for amputation of the leg at the hip or the right arm at the shoulder-joint; 70 per cent. for short thigh amputation of the leg or of the left arm at the shoulder-joint, or the right arm above or through the elbow; 60 per cent. for amputation of the leg through the knee, or of the left arm through the elbow or the right arm below the elbow; 50 per cent. for amputations of the leg below the knee—but here Syme's and Chopart's amputations are specified—or of left arm below elbow; 40 per cent. for the loss of a thumb or of four fingers of the left hand, or of three fingers of the right hand, and 20 per cent. for the loss of two fingers of either hand.

WE learn from the *Medical Record* that a bill designed to legalize the dissemination of knowledge as to birth control was introduced into the New York State Legislature on January 24th by one of the two Socialist members of that body. Our contemporary adds that in Cleveland, Ohio, on January 17th, Dr. Benjamin L. Reitman, of Chicago, was found guilty of distributing literature on birth control and was sentenced to pay a fine of £200 and to serve six months in the workhouse; an appeal has been lodged. In New York Mrs. Ethel Byrne was found guilty of the same offence and sentenced to thirty days in the workhouse. She began a hunger strike, but was promptly fed through the stomach tube.

England and Wales.

REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

THE report of the local manager on the first year's working of the experiment of the Liquor Control Board in Carlisle states that the establishment of the Gretna Tavern had proved a great success; the trade in food steadily increased and represented 70 per cent. of the total takings. Recently arrangements had been made to supply breakfasts, as it was found that the tavern was used by men who had been able only to find sleeping accommodation without facilities for obtaining food. Twenty licensed premises had been closed within the city, in three others "on" licences had been given up, and one house, suspended after a conviction, would not be reopened for the sale of intoxicants. In October sixteen licensed premises in the Longtown districts had been transferred to the Carlisle control, and since then nine more licensed premises in the county area had been so transferred. A new order, made by the Board of Control on the recommendation of the local advisory committees, came into force on February 24th prohibiting the sale and supply of spirits on Saturdays over a wide area, including Carlisle and the adjacent part of Cumberland and the Western Border area situated in Scotland. A similar order has been in force in the Longtown district for some months; it worked well for that district, but people from it went into Carlisle on Saturdays, and it is said that the favourite beverage consisted of two glasses of whisky diluted with a pint of beer. It recalls the mixture a London cabman considered the most intoxicating of all—namely equal parts of stout and gin. The Carlisle Committee has resolved to open twenty-six public-houses in the city for the sale of food and non-intoxicants on weekdays between 10 a.m. and 9 p.m. (except between 2.30 p.m. and 3 p.m.), and on Sundays between noon and 2 p.m., and between 4 p.m. and 6 p.m. The manager states that the additional male population of Carlisle, due to the influx of munition workers, was, in round numbers, 11,000.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

At the annual meeting of the Royal Southern Hospital, Liverpool, on February 19th, over which the Lord Mayor presided, the annual report for the past year, the seventy-fifth, was presented. It stated that the number of beds available is now 223, that the total number of in-patients admitted during 1916 was 2,630, as compared with 2,503 in 1915, and that the average cost per bed was £93 5s. 5d. in 1916, as compared with £84 17s. 4d. in 1915. The number of beds set aside for the treatment of military patients was 70, and this accommodation had been fully utilized. Although the Liverpool School of Tropical Medicine, so long associated with the Royal Southern Hospital, has now new buildings close to the university, the ward for tropical diseases is still maintained owing to the proximity of the hospital to the docks, where great numbers of ships trading to the tropics are berthed. The total number of new out-patients in 1916 was 15,265, as compared with 15,937 in 1915. From a teaching point of view the departments representing the various specialities are thoroughly well organized and show a steady increase in numbers compared with previous years. The average cost per out-patient in 1916 was 2s. 7.15d., in 1915 1s. 9.40d. The treatment of venereal diseases has already been taken in hand in accordance with the Local Government Board regulations, July, 1916. Two small wards have been set aside, one for males and the other for females. Thus the Committee has lost no time in rendering more efficient the treatment of these diseases by organization of a department which will be administered by the hospital authority.

In spite of the war the annual subscriptions, donations, etc., patients' payments and receipts under the Insurance Act, show an increase over those received in 1915. Thus the total ordinary income from these sources in 1916 was £13,389 13s. 2d., as compared with £11,614 6s. 2d. in 1915. Unfortunately the debt due to the bank on December 31st, 1916, was £9,317 9s. 1d. The cost of provisions shows a great increase. In 1916 it amounted to £6,372 18s. 6d. as compared with £4,482 2s. 8d. in 1915. On the other hand, it is gratifying to note

that under the heading surgery and dispensary the increase in 1916 was only £9 over that of 1915. A considerable saving has been effected in drugs, dressings, and instruments. In these items there is always a danger of avoidable extravagance, and of these little but important matters waste in dressings especially should be rigorously kept within bounds. The number of military patients treated since October, 1914, to December, 1916, was 761. Many rejected recruits have been rendered physically fit for service, and systematic instruction has been given to V.A.D.'s during the past year.

National Council for Combating Venereal Diseases.

Formation of London and Home Counties Branch.

At a conference held at the Royal Society of Medicine at the invitation of the National Council for Combating Venereal Diseases, on February 26th, when Lord Sydenham was in the chair, a London and Home Counties Branch of the National Council was formed. In seconding the principal resolution, which was moved by the Bishop of Southwark, Sir Malcolm Morris said that to ensure the success of the policy of the National Council, which was to diffuse knowledge, it was necessary to subdivide the country so as to get at the people who suffered, explaining to them that they could obtain free, sympathetic, and secret treatment, and that it was ridiculous to suffer in privacy. Sir Edward Henry, Chief Commissioner of the Metropolitan Police, said that about 80 per cent. of the force were married, and that the number of cases of venereal diseases was relatively small. Instructions had been issued that any man infected in the past should apply confidentially and undergo a test to ascertain whether he was free. Every recruit was given full instructions on the subject, and he thought that the services of the police should be utilized in passing on the information it was desired to impart to the public. An executive council was elected, including the following members: The Bishop of London, Sir Thomas Barlow, Sir John McClure, Sir Malcolm Morris, the Earl of Ancaster, Mr. E. B. Turner, Mrs. A. C. Gotto, Dr. Hogarth (Bucks), Colonel Smith (City), Dr. R. V. Clarke (Croydon), Dr. W. Benton (East Ham), Dr. Charles Saunders (West Ham), Lieutenant-General Sir Francis Lloyd, the Rev. Dr. Lidgett, Mgr. Brown, Sir Edward Henry, Dr. J. J. Pringle, Dr. James Sequeira, Mr. A. Moro, and Mr. H. S. Fox.

London County Council.

The London County Council, on February 20th, agreed to the appointment of two additional women doctors, to be designated "medical inspectors," under the Midwives Act, making four such inspectors in all. It was stated that during the past two years the growth of the work had been very great, and it had not been possible to investigate fully all cases of puerperal fever and ophthalmia neonatorum, nor to make the necessary routine visits of inspection to midwives. If certain suggestions made by the Central Midwives Board with regard to the visitation of cases of stillbirths were adopted the work would be still further increased. The Council agreed to a motion that the increase in the routine visits paid to midwives and the full investigation of special cases and the visitation of cases of stillbirths were matters of urgent importance.

The number of applications for registration of establishments for massage or special treatments granted up to the end of 1916 was stated to be 848. Nineteen orders had been issued refusing registration, and in all these cases either the applicants had not appealed or the appeals had failed.

The Public Health Committee reported that on December 31st last 120 adults and 319 children were undergoing residential treatment for tuberculosis, that the offer of the Metropolitan Asylums Board of twelve beds for adult advanced cases at the Downs Sanatorium and thirty-two beds for children at the Northern Hospital had been accepted, and that schemes for the dispensary treatment of tuberculosis submitted by the Battersea, Camberwell, Hampstead, and Stoke Newington Metropolitan Borough Councils, and a joint scheme submitted by the Islington, Finsbury, and Shoreditch Councils, had been approved.

Scotland.

THE Morison lectures before the Royal College of Physicians of Edinburgh will be delivered on March 5th and 9th, at 5 p.m. on each day, by Dr. Edwin Bramwell. The subject of the course is the neurology of the war; the first lecture will deal with gunshot wounds of the peripheral nerves, and the second with shell shock and some effects of head injuries.

Insanity and the War.

Dr. C. C. Easterbrook, Physician-Superintendent of the Crichton Royal Institution, stated in his report for 1916 that out of 157 patients received during the year the illness of 19 was traceable to the war. Two were women, one a mother broken with grief by the death of her son, and the other an excitable adolescent, a Belgian refugee. Of the seventeen men, four were nervous subjects, of whom two had worried unduly over their rejection for the army, and two had succumbed from overwork; all the other cases gave a history of anterior mental defect. In all the cases the common factor of nervous and mental instability was present, and the war, by influencing the lives of the individuals in various ways, had exposed and accentuated their inherent weakness.

The Carnegie Trust.

At the annual meeting of the Carnegie Trust, held in London on February 21st, Lord Balfour of Burleigh was elected chairman in succession to the late Earl of Elgin, to whose work in that capacity many eulogistic references were made. The secretary, Sir William S. McCormick, reported to the meeting that under the quinquennial scheme, which came into operation on October 1st, 1913, a total sum of £203,250 was allocated among the universities and extramural colleges in equal annual amounts; of this sum £160,750 was applicable towards the cost of new buildings and permanent equipment, £21,250 for endowments and lectureships and other general purposes, and the remainder for libraries. St. Andrews University received £37,500; Aberdeen, including £40,000 to the University, £43,250; Glasgow, including £50,000 to the University, £60,250; and Edinburgh, including £52,500 to the University, £62,250. The operations of the Trust under the research scheme had again been affected by the war, since four Fellows and twelve scholars had been engaged on war duty. One Fellow and two scholars had fallen. Since the commencement of hostilities special arrangements had been made to hold over the awards of ten Fellows and twenty-four scholars in the hope that they might be able to resume work later. The ordinary activities of the laboratory of the Royal College of Physicians had to a large extent given place to special work. The expenditure under the scheme of endowment of research for the year 1915–16 was £5,200. The expenditure on assistance in payment of class fees had, owing to the depletion of the universities of Scotland of many of their students, declined from £33,800 paid on behalf of 3,246 individuals in 1914–15 to £29,400 on behalf of 2,445 individuals in 1915–16. Lord Balfour of Burleigh said that in response to the invitation of the Treasury the trustees had parted with the remaining bonds of the United States Steel Corporation in exchange for War Loan securities, which the Trust now held to the amount of £2,558,000. Its income was increased by something over £9,000. On the motion of Sir Donald MacAlister, three new trustees were elected to fill death vacancies. He pointed out that of the six trustees who had died since the formation of the Trust, four were scientific men, and as it was one of the functions of the Trust to encourage scientific research, it was expedient to fill up the existing three vacancies by nominating scientific men of eminence. It was accordingly resolved to appoint Sir J. J. Thomson, President of the Royal Society, one of the most distinguished physicists in the world; Sir David Prain, Director of Kew, a representative of biological science; and Sir George Beilby, head of the Royal Technical College of Glasgow, now acting as the adviser of the Government on branches of science which might be applied to the purposes of the war.

The annual report of the Carnegie United Kingdom Trust, which was presented by the Executive Committee

to the trustees at a meeting on February 24th, was unanimously adopted. It referred to the continuance of the policy of encouraging the formation and maintenance of rural and special libraries, and the establishment of a central library for students in Tavistock Square, London. With regard to the inquiry into the problem of the physical welfare of mothers and young children, Dr. E. W. Hope and Dr. Janet Campbell were making a report for England and Wales, Dr. W. Leslie Mackenzie for Scotland, and Dr. E. Coey Bigger for Ireland.

Lord Balfour of Burleigh, at the meeting of the Carnegie Trust on February 21st, said that the conversion of bonds by that Trust, by the Dunfermline Hero Fund, the Dunfermline Trust, and the United Kingdom Trust, involving the conversion of approximately five millions into very nearly six millions, was the largest single transaction which the Bank of England had ever been responsible for in so short a time.

Ireland.

REGIUS CHAIR OF PHYSIC IN THE UNIVERSITY OF DUBLIN.

THE Board of Trinity College, acting on the unanimous nomination of the University Council, has appointed Doctor John Mallet Purser, M.D., Sc.D., F.R.C.P.I., to the Regius Professorship of Physic in the University of Dublin. Doctor Purser was for more than twenty years Professor of the Institutes of Medicine in the School of Physic, and Physician to Sir Patrick Dun's Hospital. At the present moment he is honorary consulting physician to Sir Patrick Dun's and to Dr. Steevens's Hospital, Dublin. Dr. Purser's return to the School of Physic will give the greatest pleasure to many generations among the medical graduates of the university.

ASYLUM INMATES FOR FARM LABOUR.

At the last meeting of the Mayo Asylum Committee the resident medical superintendent, Dr. Ellison, suggested that a number of the most intelligent male patients should be hired out, as tillage labourers, to persons living within a radius of one mile of the asylum. Their labour would be under the immediate supervision of an attendant, and would only be available for persons who could not provide the necessary labour to comply with the requirements of the tillage scheme. An order was made directing that all the asylum surplus labour should be utilized in the manner suggested by Dr. Ellison.

FOOD CONTROL IN IRISH PUBLIC INSTITUTIONS.

On February 12th the Local Government Board of Ireland sent a circular to the clerks of all unions calling attention to Lord Devonport's recent appeal, and emphasizing the urgent need for some curtailment in food consumption both by officials and inmates of the various workhouses. It was, the Board considered, essential that the guardians should make every endeavour to comply with the requirements, that the rations allowed at present to the various officers admitted of considerable reduction in the directions indicated, and the guardians should, therefore, take into consideration their curtailment for the period of the war. In cases of married officials with families the guardians might allow the rations to remain as at present, provided the quantities were not in excess of those mentioned by the Food Controller. As regards the dietary of the inmates, the Board expressed its belief that it would be quite possible to effect some economy, specially in bread; in place of the bread and tea allowed for breakfast and supper it might be advisable to substitute porridge and milk at one meal, and the bread, when allowed, might be reduced at each meal by an average of one ounce a head. How necessary these reforms are will at once be apparent by a glance at the rations and dietary of the Dublin unions. For instance, in the North Dublin Union the first-class rations for officers weekly is: Bacon 4 lb., butter 2 lb., flour 7 lb., sugar 3½ lb., milk 7 quarts, mutton 7 lb., potatoes 14 lb. A healthy inmate's allowance of bread is 6 oz. for breakfast, the same quantity for dinner if no potatoes are served, while some have 6 oz. and others 4 oz. for supper; in other words, from 10 oz. to 18 oz. of bread a day. At the Rathdown Board a guardian stated that the inmates only got a very meagre diet and their scale of rations could not be cut down. The letter was marked "read and noted." On the other hand, the South Dublin guardians ordered the master to report to the board as to the number of officers in the workhouse and their families, and the scale of diet. The letter was referred to the Finance Committee, and it was directed that the medical officers should attend and give all the information they could. The Lurgan Board of Guardians has approved the recommendations of a committee appointed to revise the dietary scale. It had made reductions in the allowances to officers and inmates amounting to £335 16s. 4d. a year. The infirmary dietary was not touched, though the allowance of bread for the sick inmates was 7 lb. a head a week. The Dungarvan Board of Guardians has decided to reduce the bill of fare for the workhouse inmates and officials, especially with regard to meat and bread. A committee was also appointed to inquire into the consumption of coal. The Clones Board of Guardians has adopted a reduced scale of rations for the indoor officials and the inmates based on a report submitted by the medical officer and a committee of the guardians. The Joint Committee of the Richmond District Lunatic Asylum has received a report from a subcommittee stating that the quota of the Food Controller in respect of meat and sugar for patients had already been adopted. Considerable reductions in the scale of diet given to attendants and officials were recommended, though even this reduced diet would be in excess of Lord Devonport's scale. The subcommittee recommended that this scale should continue in operation until September 1st, when it should be subject to revision. The report was adopted.

SLUM CHILDREN OF DUBLIN.

Mr. Conway Dwyer, ex-President of the Royal College of Surgeons of Ireland, at the annual meeting of the St. Patrick's Nurses' Home, in proposing the adoption of the report, said he thought the committee was to be congratulated on the admirable manner in which, with a seriously depleted staff, they had succeeded in carrying on the work. The nurses did not entirely restrict their work to their nursing duties. They explained by example and precept the value of cleanliness, showed how a room ought to be kept, how food should be cooked, and how children should be attended to. The first humanizing and civilizing influence that had penetrated into the homes of the very poor had been brought by the nurses of that and similar institutions. The report stated that 608 children were attended to, and that forty were sent for treatment to the Cheeverstown Convalescent Home for little children. One of the most common and deplorable sights to be met with in Dublin streets at all hours were multitudes of children of both sexes in a state of dirt and squalor, and presenting the stigma of disease, induced by exposure and starvation. For them there was no school attendance, or if there was any machinery for compelling school attendance it was a dead letter. The need for the work done by St. Patrick's Home was, to a very large extent, due to the bad housing accommodation for the poor. Improvidence and intemperance contributed very materially to bring about a low level of life, but the dominant factor was the miserable housing accommodation of the poor, and nothing would be right until that was altered. Charitable institutions were treating the symptoms, but it was fatal to take symptoms for causes, and until the whole question of the housing of the poor was radically dealt with there would be abundant scope for voluntary charitable effort. Dr. Ella Webb, in seconding the resolution, said that something could be done to help child welfare without waiting for the conclusion of the war. Without adding to the staff or to the cost, the nurses could help a good deal. Dublin was receiving £1,000 out of the £5,000 grant to Ireland, and that money had been augmented by the corporation. There were eight nurses engaged by the Infant Aid Society and at the babies' clubs or clinics, and she suggested that the St. Patrick's nurses could help them to get into touch with the newly-born infants in Dublin.

ORTHOPAEDIC HOSPITAL OF IRELAND.

The report presented to the annual meeting of the Incorporated Orthopaedic Hospital of Ireland stated that

during the past year 170 children were treated—145 for deformities and 25 for tuberculous bone disease. Of these, 74 were discharged cured, 20 were discharged improved, 4 were incurable, 1 died, and 71 remained in hospital on December 31st. The average number of beds in daily occupation was 75, and the average residence of each patient was 161 days. In addition a large number of patients were treated in the dispensary attached to the hospital. During the discussion of the report the opinion was strongly expressed that the work of the hospital during the last forty years had resulted in reducing the number of cripples in the country, and a tribute was paid to the memory of Surgeon Swan, who founded the hospital and had devoted his life to its success.

Victoria.

BRITISH MEDICAL ASSOCIATION (VICTORIAN BRANCH).

At the annual general meeting of the Victorian Branch of the British Medical Association held in December, 1916, Professor R. J. A. Berry was unanimously elected president for the ensuing year, and Drs. McAdam and Ernest Jones were unanimously elected vice-presidents. The retiring president, Dr. A. V. M. Anderson, delivered a valedictory address of more than ordinary interest, as he touched upon many of the far-reaching results which the war is likely to have on the medical profession as a whole and in all parts of the empire. The keynote of his address, which has already been published *in extenso* in the *Medical Journal of Australia*, was that "sacrifices, even in time of peace, will be required of us."

REPORT ON TUBERCULOSIS.

The Federal Committee concerning causes of death and invalidity in the Commonwealth has just published its report on tuberculosis. Although the Australian rate for all forms of tuberculosis in 1914 was 45.1 per cent. lower than the rate for England and Wales, the Committee is of opinion that the existing tubercle rates of Australia are unsatisfactory, in view of the ample spaces available, the separate housing of families, and the high wages current. With further investigation the Committee hopes that tubercle in Australia, if not abolished, may be brought down to the rate that would correspond with the excellence of Australia's opportunity. The Committee makes various recommendations, the most important of which is probably that dealing with the greater need in Australia for co-ordinated investigation both in the laboratory and in the field.

THE ANNUAL RATE OF GROWTH OF THE BRAIN.

The investigation into an as yet entirely unknown subject, the annual rate of growth of the brain on the living subject between the ages of 6 and 21 years, has recently been inaugurated by Professor Berry and some of the students of the Anatomy Department. The research, which promises to be of more than ordinary interest, has already entailed the examination of 1,700 boys and girls. These comprise State and public schools and university students, controls having been sought amongst the mentally deficients and the deaf and dumb. The Director of Education has been sufficiently interested in the preliminary results submitted to him to promise the co-operation of his department for the further prosecution of the work, and arrangements are now completed for a considerable extension of the investigation during the current academic year. Although the physical method alone can hardly predict individual intelligence from the size of the head, it seems certain that in the cases of abnormally small or large headed children much valuable information can be placed in the hands of the mental expert and the educationalist. As Mr. S. D. Porteous, of the Bell Street State School for mentally deficient children, has taken an active part in the investigation there is, for the first time, the necessary combination of the physical and mental experts.

THE UNIVERSITY OF MELBOURNE.

Dr. W. A. Osborne, Professor of Physiology in the University of Melbourne, has been granted short leave of absence, and is at present in England. Dr. Gilbert Lamble, lecturer on histology and embryology, has resigned his appointment, to the regret of all associated with him. As it has been found impossible at the present juncture to fill the vacancy, the work is to be temporarily divided between Dr. P. G. Dane, of the A.A.M.C., and the Professor of Anatomy.

Correspondence.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—I should be glad of space to reply briefly to certain criticisms evoked by my letter in your issue of February 17th, p. 243.

My reference to patients who come seeking advice about abortion has been misunderstood by two correspondents. It was never meant to imply that the act of prostitution is a crime. According to some of your correspondents, it is a necessity; according to others, unnecessary and a sin against the welfare of the race. One gentleman suggests it is a necessity for women and not for men; a private correspondent informs me it is so profoundly necessary for men and unnecessary for women that women cannot understand the question at all. The fact that it is not a crime is the one point on which we are all likely to agree. My contention that Mr. Elliot's dicta would compel a medical practitioner "equally to give the benefit of his skill to the ladies who come for information how to procure abortion," etc., had reference solely to his original statement: "We come to you for your medical knowledge . . . alone; we come to you to draw the interest on that capital knowledge of which you are the trustees, and you have no right or option to withhold from us the proceeds and benefits of medical knowledge, which are our property and our due, at least as much as they are yours." It is now admitted (February 24th) that the layman's property in his medical adviser's knowledge is not absolute but ceases if the knowledge is sought for a purpose which "society has determined is a crime." Society, then, and not the individual layman, as appeared from Mr. Elliot's first letter, is to be the arbiter. Now English society has not decided, and I trust never will, that the act of prostitution is a crime, but it does very definitely penalize persons who facilitate the traffic (such as the keepers of disord rly houses, and the proprietors of music halls frequented by prostitutes), and furthermore it has refused to make arrangements for the comfort or convenience or safety of persons who choose to frequent prostitutes. In refusing to give prophylactic advice the doctor may be right or wrong, but is only acting in the closest accordance with Mr. Elliot's chosen arbiter-society. The reasons for the refusal of the doctor and of "society" are probably the same—neither believes that any known method exists whereby prostitution can be made physically safe either to prostitutes or their customers; neither can see prostitution as anything but morally and physically damaging to the community; both decline to sponsor illusory safeguards.

In conclusion, may I respectfully urge Mr. Elliot, in whose views on syphilis and hell I so heartily concur, not to waste time in tilting at the almost non-existent people who want to preserve either? In a wide experience of religious and philanthropic circles I have only met two such persons. One was a drunken policeman in the Outer Hebrides and the other the inmate of a lunatic asylum; both were foemen unworthy of his steel.—I am, etc.,

February 26th. THE EDITOR OF "DOWNWARD PATHS."

SIR,—Dr. Charles W. Cathcart, in his letter published in your issue of February 24th, says: "Physiological law is evidently transgressed by prostitution, by adultery, by checks to conception, and by artificial abortion."

I wish to enter an emphatic protest against the unfairness of bracketing checks to conception with the other things enumerated in his indictment. Probably Dr. Cathcart did not deliberately intend to prejudice the question of the use of "checks," but such a juxtaposition is certainly calculated to have this effect, and is frequently employed for this very purpose.

I would suggest to Dr. Cathcart that it is also unfair to say that the use of checks "transgresses" any physio-

logical law. It would be fairer to say that it "defeats" or "counteracts" the physiological law under which human beings, like all other animals, tend to multiply beyond the means of subsistence.—I am, etc.,

Leicester, Feb. 26th. C. KILLICK MILLARD.

SIR,—The outspoken letters which have been appearing under the above heading make one feel that this terrible war will have some great compensations. My point of view in the matter is briefly as follows: Prostitution will only be reduced to the perhaps unavoidable minimum when there comes to be practically universal early marriage—that is, when young adults are all made aware of birth control and encouraged to marry. Early marriage, with spacing out of births, is the physiological law. During the war, however, we shall surely best be serving the race by rapidly reducing the number of young men who get infected with venereal diseases, and this will only be done by giving them information on prophylaxis.—I am, etc.,

London, S.W., Feb. 23rd. BINNIE DUNLOP, M.B., Ch.B.

HOT SAND BATHS FOR JOINT AFFECTIONS.

SIR,—I am interested in Dr. Gordon's letter in regard to "hot sand as a preparation for massage and manipulation," published in the BRITISH MEDICAL JOURNAL of February 10th, 1917, page 191, and I thoroughly endorse his advocacy of the use of hot sand baths in the treatment of certain affections of joints, such as the knee, ankle, elbow, or wrist, particularly in country districts where radiant heat is not available, or for poor persons who cannot afford more expensive measures. The following is the technique I have employed:

A large cubical biscuit tin should be filled with perfectly dry, fine silver sand, and the whole heated to as high a temperature as can just be borne by the hand immersed in it. If the application is to be made in the evening, a convenient way of warming the sand without special expense is to have the tin with the sand in it standing close to the kitchen fire, or on the range, if there is one, all day. The application is made when the patient is lying upon a convenient couch, or in bed, and by means of cushions, or other similar contrivances, a sort of hollow or pool is arranged all round the knee or other part that is to be treated. Under the knee and over the surrounding cushions is placed a strong mackintosh sheet. The hot sand is then poured out of the tin gently and steadily on to and all round the knee, so as to fill up the space between it and the surrounding cushions, and also to cover the knee itself as deeply as possible. The limit to which the sand should be poured on depends upon the degree of pressure that the affected joint can stand. Sand being very heavy, an acutely painful joint can only stand a thin layer over it, whereas a less painful more chronically affected joint may be covered to a depth of two or three inches or more. Sand retains its heat for a long time; but to prevent it cooling more rapidly than necessary, it is wise to throw over the whole a second mackintosh sheet to keep in the heat.

One of the chief factors in the treatment is the active hyperaemia produced around the diseased part, just as in the case of Bier's hyperaemia and of the treatment by means of radiant electric heat. One supposes that when more blood is brought to the affected region in this way, the natural powers of recovery are stimulated and relief given. It has been suggested—and I think with some degree of probability—that the hot sand bath acts in another way also, and this is by reason of the heated sand becoming electrically charged, which may have some obscure but real influence upon the parts. At any rate, the relief that may be afforded by means of so simple a treatment continued for half an hour at a time, once, or possibly twice a day, is sometimes very remarkable, and the method has the advantage of being applicable even in the poorest households in which radiant electric heat baths for lesions of this kind may be entirely out of the question.

When the joint or other part has been embedded in the hot sand for twenty minutes or half an hour and the time for stopping the application has come, the uppermost mackintosh sheeting is taken off, the limb carefully raised out of the sand, allowing as much of the latter as will fall off from it to do so. The underneath mackintosh sheet, with the sand upon it, is then lifted up bodily and removed, the sand being put back into the tin ready for use in a similar way on the next occasion. A basin of hot water is placed beneath the knee, and the particles of sand that have stuck to the perspiring skin are gently removed by pouring hot water over the part by means of a soft sponge. The limb can then be dried gently with a hot towel, and any other application that may be thought desirable may be made to the part.—I am, etc.,

London, W., Feb. 20th. HERBERT FRENCH.

THE EFFECTS OF CINEMATOGRAPH DISPLAYS UPON THE EYES OF CHILDREN.

SIR,—In your issue of February 17th Mr. Bishop Harman states, as a "recent observation," that some school children who have defective vision are found on examination "to have nothing the matter" with their eyes, and this loss of vision, he thinks, is due to cinematograph displays.

In the BRITISH MEDICAL JOURNAL for 1907 there is an article by Dr. H. Wright Thomson on the results of an examination of over 50,000 children in the Glasgow schools. These results showed that while the percentage of ocular defects remained constant all over the city, the percentage of defective vision showed remarkable variation. In the poorest and most closely built districts the percentage of children with defective vision was 53, and in the open districts, in the outskirts of the city, it was only 20 per cent. The principal cause of this defect is imperfect environment.—I am, etc.,

The Lord Derby War Hospital, Warrington, Feb. 20th. J. A. WILSON.

THE MOBILIZATION OF THE PROFESSION.

SIR,—I have been much interested in the various "reflections" which have from week to week appeared. One hears very different accounts of the work entailed in the R.A.M.C. Some men give one to understand that at times it is really arduous, whilst one gathers from others that three or four are apt to gather together and kill time with cigarettes and cards. Probably both accounts contain a large proportion of truth.

There seems, however, to be one striking difference between civil and military work. The civil doctor is expected to go without any holidays in war time, and is, in fact, regarded as somewhat of a slacker if he is not doing collar work all the time, whereas it is quite pretty to see how often we may greet our khaki friends on leave. This fact brings me into complete accord with "Rural M.D." in his happy suggestion of taking a well-earned and much-needed holiday by joining the R.A.M.C. On the other hand, one must admit that the civil doctor would have a very easy time (now and always) were the average case he is called to anything but trivial. A night call is, I think, in nine cases out of ten due to nothing more terrible than flatulence, but the fact remains that one is disturbed just the same, so that the aggravation is doubled and therefore the fee ought to be trebled.

The moral is that more civil doctors could be spared if the ridiculous inconsiderateness of the civil population could be curbed by the imposition of fees to fit the offence. But the millennium is not yet.—I am, etc.,

February 25th. BRISTOL.

Universities and Colleges.

UNIVERSITY OF LONDON.

War List.

THE Vice-Chancellor of the University of London will be glad to receive the following information with regard to members of the University who have served or are serving in His Majesty's Forces: Name (Christian names in full), College and University career, rank and regiment or other unit, particulars of service (including war distinctions, and whether wounded, retired, or fallen), with dates. Replies should be addressed to "University of London War List, South Kensington, London, S.W."

Obituary.

ROBERT HENRY KINSEY, M.R.C.S., L.S.A., J.P.,

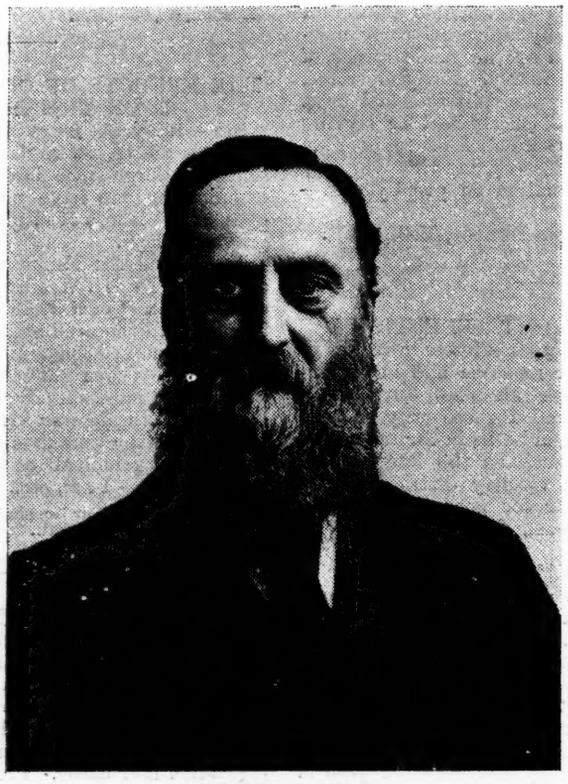
CONSULTING SURGEON TO THE BEDFORD COUNTY HOSPITAL.

WE regret to record the death of Mr. Kinsey, which occurred at Bedford on February 18th in his 77th year.

Mr. Kinsey, the son of Robert Bancroft Kinsey, Deputy Inspector-General of Hospitals, Bombay army, was born in 1840, and was educated at Emmanuel College, Cambridge, and St. Bartholomew's Hospital, London. He took the diplomas of M.R.C.S. in 1865 and L.S.A. in 1866, and became House-Surgeon at St. Bartholomew's. A severe attack of septicaemia caused him to relinquish this post and take a voyage to Australia in a sailing ship. On his return he became assistant to the late Dr. Drage of Hatfield.

He settled in Bedford in 1867, and devoted himself most assiduously to work there until he retired in 1899, at a somewhat early age, owing to increasing deafness. He was appointed surgeon to the Bedford General Infirmary and Fever Hospital (now the County Hospital) in 1874, and held the post until 1896, when he was appointed consulting surgeon.

About thirty years ago he was President of the South Midland Branch of the British Medical Association, and in 1897 of the Bedford Medical Society. He took a great interest in all local medical developments such as the rebuilding of the County Hospital, the building of the Bedford Provident Dispensary, and the Bedfordshire Trained Nurses' Institute and Nursing Home.



ROBERT HENRY KINSEY.

Photograph by] [London Stereoscopic Co.

He was a Justice of the Peace for Bedford, and for a few years a member of the Town Council. He was a member of the Council of the British Medical Association from 1899 to 1910, and was a member, and afterwards chairman, of the Central Ethical Committee. He was a most regular attendant at the meetings both of the Council and of the Committee, and his equable temperament, calm judgement, and conciliatory attitude made him a most valuable member. He gave a great deal of time and thought to his duties as chairman of the Ethical Committee—a position which calls for just those qualities by which Mr. Kinsey was most distinguished.

His kindly cheerful disposition and keen mental vigour brought him a very extensive practice of the best kind in and around Bedford. He was exceedingly fond of children, although he had none of his own; and children and young people always liked him. He gave all his energies to the demands of a very busy practice, and the conscientious discharge of these duties left him little time for relaxation. This, combined with a natural modesty as to his professional attainments, prevented his contributing to current literature the results of his great practical experience. He had great powers of organization, and when he wanted anything done, or was a candidate for any appointment, he acted with the greatest promptitude, and obtained his wishes whilst another man would have been considering the ways of obtaining them. He was an excellent fighter for any cause he considered worthy.

No account of his career would be complete without some reference to his private life. He was a man who stood firm for everything that was upright and honourable, and was quite fearless of consequences. He was a great friend of the poor, unceasing in his efforts for the amelioration of their condition, a strong advocate of temperance in the best and widest sense, untiring in everything that tended to the welfare of the town in which he had lived for nearly fifty years, and which is now deprived of the advice, counsel, and example of one of its noblest citizens. He was a devout and sincere Christian, having a passion for righteousness, with his face set steadfastly to the Eternal Goal. Devotion to his Master, Christ, led him to put his whole strength into the furthering of the missionary cause. For this he prayed and worked, and gave to the utmost of his ability. His example and enthusiasm have stirred very many, who learnt from him to put foreign missions, medical, industrial, and evangelistic, in the foremost place.

FRANCIS POOLE LANSDOWN, M.R.C.S.ENG., L.S.A.,

CONSULTING SURGEON TO THE BRISTOL GENERAL HOSPITAL; SURGEON LIEUT.-COLONEL V.D. (RETIRED).

MR. F. POOLE LANSDOWN died on February 12th, 1917, after a short illness, at Lydford, Devon, at the advanced age of 83. He was the second son of Mr. J. Goodale Lansdown, a well known surgeon in his day, and one of the earliest surgeons to the Bristol General Hospital. He was one of the first batch of boys who entered that now famous school, Marlborough College, on its opening term. His medical education was received at the Bristol Medical School and Guy's Hospital; he obtained the diplomas of M.R.C.S. and L.S.A. in 1856. Shortly afterwards he was appointed house-surgeon to the Bristol General Hospital, and from that time until the day of his death, a period of sixty years, he was connected with its surgical staff. He became surgeon to the hospital in May, 1861, and was for many years senior surgeon, retiring in April, 1893, when he was appointed consulting surgeon. He was for a time lecturer on anatomy in the Bristol Medical School, and for many years held the post of surgeon to the General Post Office at Bristol and several posts under the Charity Trustees.

Mr. Lansdown was a past president of the Bath and Bristol Branch of the British Medical Association and also of the Bristol Medico-Chirurgical Society, the highest honours in the control of the local profession. These facts will serve to indicate the respect and esteem in which he was held by his professional brethren, among whom he had passed the active period of his life.

In early days Mr. Lansdown was an ardent volunteer, serving as surgeon to the Gloucester Volunteer Artillery, and reaching the rank of Lieutenant-Colonel.

As a surgeon he was a calm, careful, and skilful operator, taking no unnecessary risks. His was a sound opinion in surgical cases, and he kept himself well abreast of the surgery of the day. He saw the dawn of anaesthetics, antiseptics, and abdominal surgery, but retired too early from surgical work to be able to avail himself of the more modern aids to surgical diagnosis. He was by nature modest and unassuming, yet steadfast and firm of purpose; he was punctual and methodical in the performance of his many and varied duties; a good friend, a loyal, agreeable, and most helpful colleague, as the writer of this notice can affirm after being associated with him professionally for nearly fifty years.

The Lansdowns have been a landmark in the surgical history of Bristol for the best part of a century, three generations—father, son, and grandson—having each in their order been surgeons to the Bristol General Hospital, the present representative on the surgical staff of that institution being Major Robert Lansdown, who is busily and exclusively engaged in civil and military surgery, now so abundant in Bristol in consequence of the great war. The latter's son, a graduate of Cambridge, is now a student of Guy's Hospital, a goodly family record, from a surgical point of view, to the fourth generation.

Mr. Lansdown had for many years a considerable practice in Clifton; he retired about twelve years ago, and went to reside at Lydford, on the fringe of romantic Dartmoor. In this respect two lines from a great poet, who was also a doctor, might appropriately be quoted:

> How blest is he who crowns in shades like these
> A youth of labour with an age of ease.

Mr. Lansdown was twice married, and leaves a widow, two sons, and one daughter, to keep his memory hale and green.

WILLIAM PRICE, M.B.Lond.,

CARDIFF.

By the death of Dr. Price, on January 11th, South Wales lost one of its most distinguished medical men. He was born in the Vale of Glamorgan in 1845, and received his first educational training at the Eagle School, Cowbridge, Glamorganshire. From there he went to the Normal College, Swansea, a private school conducted by Dr. Evan Davies, and celebrated for the number of eminent medical men it gave to the Principality, including Sir John Williams, Bt., and the late Dr. Thomas D. Griffiths of Swansea, a past president of the British Medical Association. The school had an excellent chemical laboratory, the teacher being Professor Greville Williams, F.R.S., the discoverer of so many products from coal tar. After his school days, in accordance with the custom then, Dr. Price was articled to Dr. William Edwards, a well-known physician in Cardiff, and afterwards entered University College, London. His record there was excellent, and after taking the diplomas of M.R.C.S. and L.M. in 1868, he became demonstrator of anatomy at the college, and afterwards was appointed obstetric assistant and physician assistant at University College Hospital. He took the diploma of L.S.A. in 1869, that of L.R.C.P. in 1870, and graduated M.B.Lond. in that year. Dr. Price was thought highly of by Sir William Jenner, and when the latter was away on holiday frequently acted as his locumtenent. This gave him an opportunity of becoming acquainted with some of the celebrities of the day. For a quarter of a century he remained one of the leading consulting physicians in South Wales. He had "an infinite capacity for taking pains," and as a diagnostician was almost unerring. Dr. Price was never inclined to lead, often difficult to draw, but any remarks he did offer were always shrewd and thoughtful. He was one of the most generous of men, and gave freely towards all philanthropic and charitable funds. The Prince of Wales's Fund, the Royal Medical Benevolent Fund, and the Y.M.C.A. work all profited by his liberality. He was particularly interested in the medical school in connexion with the University College of South Wales and Monmouthshire, Cardiff, and was at one time a prominent member of its council. It did not come as a surprise when it became known that he had bequeathed a princely gift of some £20,000 to that institution. May the writer suggest how fitting it would be were some permanent memorial of such a sympathetic patron placed in the college?

About fifteen years ago Dr. Price retired from practice, and went to live on the coast near Southerndown, Glamorganshire. He was fond of his native Wales, and in particular of the Vale of Glamorgan. The restless sea had an irresistible attraction, and the sound of the breakers was sweet music to his ears. In his retirement Dr. Price loved to entertain old friends, and was never happier than when recounting with them reminiscences of former days. He will be missed by all who admire skill, knowledge, generosity, and true Christian broadmindedness. His religion was not moored to the dogmas of any particular sect. He respected all sincere conviction. "Blessed are the pure in heart, for though their eyes be closed they shall see God."

Dr. Wendell Reber, a leading ophthalmologist of Philadelphia, died on December 30th, 1916. He was born at St. Louis in 1867, and took his degree at Jefferson Medical College in 1893. He was professor of ophthalmology at the Polyclinic Post-graduate School and ophthalmologist to the General and several other hospitals of Philadelphia. He was a Fellow of the American College of Surgeons, a former president of the American Academy of Ophthalmology and Otology, and the American representative on the council of the Oxford Ophthalmological Congress.

Dr. Charles Francis Withington, of Boston, who died recently, took his doctor's degree at Harvard in 1881, and for many years was physician to the Boston City Hospital. From 1886 to 1891 he was an editor of the *Boston Medical and Surgical Journal*; to this and other periodicals he made many contributions. In 1914 he was elected president of the Massachusetts Medical Society.

Dr. Macker, the oldest member of the medical profession in Alsace, died recently at Colmar at the age of 85. He studied medicine in the old faculty of Strasbourg, where he had Boeckel and Koeberlé among his fellow students. As hospital interne he worked under Sédillot, Schutzenberger, Forget, Hirtz, and Tourdes. After graduation he settled at Colmar, where he was appointed surgeon to the hospital. He acquired a very large practice, his field of work extending from the Vosges to the Rhine.

The late Colonel T. H. Hendley.—Captain Charles F. Harford, R.A.M.C., writes of Colonel Hendley, C.I.E., of whom an obituary notice was published on February 10th, 1917, that he was much occupied during the later years of his life in connexion with the medical departments of various missionary societies. At the time of his death he was Chairman of the Medical Board of the Church Missionary Society, of which he had been a member since 1904. It is difficult to speak too highly of the painstaking way in which he sought to solve the many problems associated with the health of Europeans in tropical climates and the class of candidates who should be accepted for work in these climates. His great experience of official work in India enabled him to look at the medical side of missionary work from a somewhat different standpoint to those of his colleagues whose chief experience had been in connexion with the missionary societies, and his contributions to the discussion of these subjects were exceedingly helpful. He was an active member of the Association of Medical Officers of Missionary Societies, and one of the subjects in which he was particularly interested was that of furloughs. He was most anxious to see a more uniform system adopted by the missionary societies generally, and certain proposals initiated by him are now before the societies. Shortly before the outbreak of the war he was compelled to give up his attendance at the Medical Board of the Church Missionary Society owing to serious ill health, but when several of his colleagues were called away for military service he again offered his services, and thus was still doing active work up to within a short time of his death.

The Services.

INDIAN MEDICAL SERVICE.

The Secretary of State for India again gives notice that the absolutely indispensable needs of the Indian Medical Service are being met by nomination by the Secretary of State. Applicants, who must be over 21 and under 32 years of age, may apply for particulars to the Secretary of the Military Department, India Office, Whitehall, S.W.

EXCHANGE.

Lieutenant, R.A.M.C (T.C.), in Ambulance on Western Front, wishes to exchange with M.O. on hospital train or barge—Address, No. 750, British Medical Journal Office, 429, Strand.

Medical News.

MR. ERNEST LANE, F.R.C.S., will deliver the Harveian Lecture of the Harveian Society of London on "The Treatment of Syphilis" at the Stafford Rooms, Tichborne Street, Edgware Road, W., on Thursday, March 22nd, at 8.30 p.m.

OF the fourteen successful candidates for sanitary inspectors under the Public Health (London) Act, 1891, held by the Sanitary Inspectors' Examination Board, all were women; ten were trained at the National Health Society and two each at the Royal Sanitary Institute and the Bedford College for Women.

ON January 20th the Kansas City Board of Health opened a school of hygiene and sanitation where all persons in the employ of the health department will receive instruction. At the opening session, the State veterinarian, Dr. D. F. Lucky, gave an address on animal tuberculosis and other diseases transmissible to man.

THE Children's Code Commission has introduced in the Missouri State Legislature thirty-five bills providing for the enactment of laws for the protection and care of children, destitute and neglected, defective and delinquent, for child workers, State medical inspection of school children, protection of the eyes of newborn infants, and for the establishment of county boards of child welfare.

A COURSE of advanced lectures on infant care to teachers, infant welfare workers, mothers, and others, has been arranged by the National Association for the Prevention of Infant Mortality and the Welfare of Infancy. They will be given at the College of Ambulance, Vere Street, Oxford Street, on Mondays at 5.30, commencing on March 12th. Further particulars can be obtained from the secretary at 4, Tavistock Square, W.C.

AT the beginning of 1914 a French Sanitary League was founded, under the auspices of the Ministry of the Interior, to wage war against flies, rats, and other animals carrying parasites which cause epidemic diseases. At present the fly is the chief object of pursuit and a campaign by cinema film has been opened in 3,000 establishments. The film was recently presented to MM. Malvy and Justin Godart at a meeting held at the Ministry of the Interior under the presidency of Dr. Raphaël Blanchard.

THE hearing of the case, commonly called the White City case, terminated on February 28th in a verdict of guilty against four of the accused. The charge was of conspiring to defeat the provisions of the Military Service Acts by enabling persons liable to military service wholly or partially to escape from that liability. One of the medical men, W. B. Caley, and two of the other defendants were convicted also of conspiring to accept gifts. Caley was sentenced to eighteen months' imprisonment in the second division. The other medical man, A. R. Dow, who was not charged with accepting gifts, was sentenced to nine months' imprisonment in the second division. It was stated by counsel during the hearing that there was no imputation against Dr. Dutch, whose name had been mentioned in the case.

IT has already been announced in the JOURNAL that after thirty months of suspended animation the *Archives Médicales Belges* was to awake to new life under the auspices of the Inspector-General of the Belgian Health Service, with the assistance of the Ministry of War. Its object is to centralize the scientific work done by the Belgian profession, especially in military medicine in its largest sense. The first number, dated January, which has just reached this country, contains papers by Dr. Derache on wounds of the knee-joints by projectiles, by Dr. Renaux on malaria in Flanders, and by Dr. R. Sand on social medicine in England. Dr. Marchal contributes a critical review of work done on lesions of the peripheral nerves. The progress of general medicine is shown by a number of abstracts of foreign literature. Altogether our contemporary presents a highly creditable appearance in its revived form, and is a striking testimony to the unsubdued spirit of Belgium. The journal is under the direction of a committee, which includes the names of Drs. Depage, Willems, de Marneffe, and other leading members of the Belgian profession; the editorial secretaries are Drs. Stassen and J. Voncken. It is published monthly by J. B. Baillière et fils, 19 rue Hautefeuille, Paris, and the annual subscription for foreign countries (other than France) is 18 francs. A point of particular interest is that it is printed by war cripples at the Belgian Military Institute of Professional Re-education, at Port-Villez, in the north of France; we heartily congratulate them on the excellence of their workmanship.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

MUCOUS COLITIS.

IN answer to "Perplexed," who asked for any suggestion for the treatment of a man aged 60 who suffers from mucous colitis, we print the following communications we have received:

Dr. A. Campbell (Uley, nr. Dursley) suggests ℞ Acid. sulphuric. aromat. ɱxv, tr. opii ɱvij, decoct. haematox. ad ʒj; to be taken three times a day. He adds that the use of the long tube with 20 oz. distilled water in which is dissolved 20 grains of silver nitrate occasionally proves an immediate cure; the solution must be warm.

Dr. A. T. Brand (Driffield) recommends the inquirer to consult the article on the subject in *Clinical Memoranda* (Baillière and Co.).

Dr. W. J. Midelton (Bournemouth) relates the case of a lady aged 63 who had suffered many years from this condition, chronic arthritis, and bronchial catarrh. "She was thin, nervous, and almost afraid to eat. At times she passed a series of large loose motions containing mucus. At other times she was constipated. I treated her by means of multiple superficial acupuncture and counter-irritants, which I rely on to rid the system of germs and toxins and improve function of all kinds. The result was most gratifying. The patient gained weight and strength, and for several years her maladies have troubled her very little."

LETTERS, NOTES, ETC.

THE FUTURE OF BRITISH SPAS.

WE regret to find that in the annotation on Dr. Fortescue Fox's paper on British spas, published in the JOURNAL of February 10th, p. 201, a reference of Llandrindod Wells was accidentally omitted. The spa was mentioned by Dr. Fox and a representative from Llandrindod was invited to take part in the discussion.

FEES FOR ATTENDANCE ON PATIENT IN A COTTAGE HOSPITAL.

AT the Wood Green County Court on February 26th, Dr. F. W. Wiles, a member of the honorary medical staff of the Wood Green Passmore Edwards Cottage Hospital, sued Walter King for five guineas, fees for attending his son while a patient in the hospital. The son met with a motor cycling accident in June, 1915, and elected to go to the hospital. The plaintiff, who had been on the rota of the hospital for twenty-one years, was on duty that week, and availed himself of the council's privilege to take the son in as a private patient and attended him for three weeks. The father asked for the bill, but when it was presented refused payment, tendering a sum of two guineas for certain outside attention. It was submitted for the defendant that as the doctor was on the hospital staff he could not recover fees for attendance in the hospital; the plaintiff had made a contribution of £5 to the hospital funds, and tendered two guineas for the doctor's services in the street when the youth met with the accident, and the consultations after his discharge. His honour, Judge Cluer, said he was bound to find that the doctor was justified in making the charge, and that there was no evidence that it was an unreasonable amount; he therefore gave judgement for the plaintiff for the amount claimed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.